Annotated catalogue of "type material" of ciliates (Ciliophora) and some further protists at the Upper Austrian Museum in Linz, including a guideline for "typification" of species*

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Abstract: Methods for preparing soft-bodied protists permanently to be deposited as adequate "types" allowing a three-dimensional re-examination of specimens have only been available for the past four decades. Photographs of differently prepared and labelled "type" slides document the history of "typification" since 1974. The species- and genus-group names (as in the paper referring to the slide deposited) appear in alphabetical order for an easier location due to the various combinations of protist taxa. Information on the original denomination (protonoym), authorship, (micro)habitat and "type" location, the category and kind of deposition (original or subsequent) of "types" including the inventory numbers of our institution – with LI as official acronym – as well as the recent taxonomic status is given. Literature references are provided for the original name, recent recombinations, those related to deposition or if the species has been relegated to synonymy. Specimens labelled as "types", which they are not according to the International Code of Zoological Nomenclature, shortly ICZN, are also treated.
Currently at least 2000 "type" slides (not specimens!) of 779 species, classified in 343 genera and 138 families were deposited. 47 states with "type" localities are represented: 15 from Europe, 8 from America, 12 from Africa, 7 from Asia and 5 from the Pacific Region. 34.2 % of the species have their "type" locality in Austria, 14 % in Namibia, each about 6 % in Antarctica, Germany, France and Australia. 58.5 % of the species deposited are terrestrial, 26.6 % limnetic, 13.4 % marine and 1.5 % parasitic. These specimens have been obtained from various sources (15 persons), main contributors are Wilhelm Foissner (and his co-authors) and Jean Dragesco. More than 200 publications have been located referring to the "type" collection at Linz. Taking into account the about 4000 voucher slides including those of Bruno Maria Klein and Josef Dieckmann, the big library on protistological journals and reprints, this collection is the most comprehensive one worldwide and thus a unique training possibility for beginners to become familiar with microscopic organisms. This evaluation clearly shows the problems in "typification" of protists, which should be reflected in future editions of the ICZN and aims to make accessible important information for future taxonomic studies in protistology. Due to the misleading connotations of the term "type", some more precise technical terms are introduced to protistologists following the french herpetologist and curator Alain Dubois.

Key words: Collection, flagellates, fungi, microsporidians, nomenclature, protozoa, repository, taxonomy, testate amoebae.

* This compilation is dedicated to Wilhelm Foissner on the occasion of his 60th birthday. "Willi" continuously motivates with his enthusiasm for the microscopic world and enduring aspiration to clear faults.

Contents

1 Introduction

More than 90 % of all described ciliates and likely 99 % of other protists (with a lowercase p) without shells lack "type" series, or the material hardly shows the species-specific features (e.g. CORLISS 1965; BANDONI & DUSZYNSKI 1988; FOISSNER & PFISTER 1997, FOISSNER 2002, FOISSNER et al. 2002). This causes taxonomic and nomenclatural problems and increases the degree of subjectivity in the identification of these evolutionarily and ecologically important organisms.

A first reason for this situation was and is a conservation problem, since usual fixatives for animals such as ethanol or formalin are unsuited for their fragile cells. Particularly soft-bodied heterotrophic protists have been difficult to preserve until the beginning of the twentieth century, when in 1926 Bruno Maria KLEIN discovered a dry silver nitrate method showing the silverline system of diverse protists, particularly ciliates. Further steps revolutionising preservation and taxonomy were wet silver nitrate, protargol and silver carbonate methods (Tab. 1) showing the arrangement of somatic and oral cilia (known as infraciliature or the silverline system), which are among the most important features in ciliate and partially flagellate alpha-taxonomy (for review see FOISSNER 1991). Silver impregnation, morphogenetic studies and since the 1960s and 1970s transmission and scanning electron microscopy, respectively roughly doubled the number of described species, indicating that at least 50 % of the global free-living ciliate diversity is undescribed (cp. PATTERSON 1999; CORLISS 2002; FOISSNER 1991, 2006, 2007, 2008). Most of these stainings yield permanent slides with a quality that provides adequate "types" – necessary for a three-dimensional re-examination of specimens – to be deposited.

A second reason for the still poorly explored alpha-taxonomy is the rather bad reputation of nomenclature among protistologists (CORLISS 1962a, b, 1972b; FOISSNER 1987c; PATTERSON & LARSEN 1992, PATTERSON 1999). To a minor extent there have been "objective reasons" for this longlasting unawareness (Tab. 1): First nomenclatural rules under the title "Règles Internationales" were published in 1905, while an official "International Code of Zoological Nomenclature" – hereafter referred to as the ICZN – only appeared in 1961 and amendments were incorporated in a second edition in 1964 (ICZN 1961, 1964). Since 1943 additional rulings were mainly treated in the journal "Bulletin of Zoological Nomenclature" and as "Opinions and Declarations of the International Commission of Zoological Nomenclature" (HEMMING 1958). Thus, it was not easy to become familiar with all the dispersed rules. The third and fourth edition (ICZN 1985, 1999) revealed more acceptance, although some problems of understanding still prevail, viz. the differences between nomenclature and taxonomy as well as the underestimated role of vouchers (detailed in chapters 2.2 and 5). Among them, the very special function of name-bearing "types" being an objective connexion between the world of specimens (and, through them, of natural populations of organisms) and the world of language (e.g. ICZN 1999; DASTON 2004; DUBOIS & OHLER 1997a, b). Moreover, the nomenclature of protists is more complicated than that of plants and animals, because more than one nomenclatural code may apply due to their photo- and/or heterotrophic members (a problem not discussed in detail here; for literature see TAYLOR et al. 1986; PATTERSON & LARSEN 1992; CORLISS 1990, 1992, 1995; HAWKSWORTH et al. 1994).

John CORLISS has been the most active promoter of the importance of the ICZN and the principle of "typification" therein, because "type" specimens, which constitute an objective and reference material in the creation of new taxa, play a central role in taxonomy and other fields of biology (CORLISS 1962b, 1963a, b, 1965, 1972, 1982, 1990, 1992, 1995; WEISER 1963). The relatively short preparation tradition in protistology compared to that of invertebrates and even more vertebrates is imposed by very rare catalogues, in fact only lists, existing on "type" material (CORLISS 1972a; SALLEY et al. 1978; COLE 1994; WIKTOR & RYDZEWSKI 1991; BAKKEN 1999; AESCHT 2003b). Numerous curatorial and designation problems became evident during my first compilation of the collection on occasion of the tenth anniversary of the Biology Centre (AESCHT 2003b), which are commented here in more detail. To date, the particular "typification" problems in protists have been largely ignored by the scientists concerned, including myself, and by the scientific community in general (cp. CORLISS 1963b; HAWKSWORTH 1992; FOISSNER & PFISTER 1997, FOISSNER 2002).

This annotated catalogue of "type" material was not established as a "routine work", not merely for curatorial convenience, but resulted from the need to ensure that "types" are documented, clearly marked, and safely preserved. The compliation follows a careful examination of all published and unpublished evidence, viz. labels and the appropriate literature, particularly the original denomination and modern taxonomic revisions, to elucidate the correct and valid names of the taxa. The catalogue also facilitates the databasing of the "type" material. Although it is intended to present the specimen data for the "types" online via internet, they are published in a printed version, as recommended in the ICZN (1999 Rec. 72F). This paper aims to stimulate discussion about the absence or inadequate quality of

Table 1: Basic dates concerning the "International Code of Zoological Nomenclature" (ICZN) related to activities of protistologists promoting nomenclature in their field. Preparation methods are compiled by FOISSNER (1991).

Date	ICZN	Protistology
Jan. 1, 1758	Starting point of zoological nomenclature	
1767		First ciliate generic name (cp. AESCHT 2001)
1905	"Règles Internationales de la Nomenclature Zoologique"	
1926		Dry silver nitrate method of KLEIN
1930/31	Requirements for availability (Art. 12, 13)	
1930/53		Wet silver nitrate methods of CHATTON & LWOFF and CORLISS, respectively
1961	First edition of ICZN; variety or form excluded after 1960 (Art. 15.2); status of neotypes designated before 1961 (Art. 75.7)	
1962/64/75/82		Protargol methods of DRAGESCO, TUFFRAU, WILBERT and FOISSNER
1963		Establishment of an international type-slide collection for the ciliate protozoa (CORLISS 1963)
1964	Second edition of the ICZN	
1965		First neotypifications (CORLISS et al. 1965)
1972		31 lectotypifed and 10 neotypified taxa listed in CORLISS (1972)
1976/84		Silver carbonate methods of FERNANDENZ-GALIANO and AUGUSTIN, FOISSNER & ADAM, respectively
1977		Commitee on types of protists with complex life cycles
1985	Third edition of the ICZN; invention of a new class of holotype (hapantotype) for use in modern microbiology when an individual specimen alone cannot serve the requirement for a name-bearing type	First neohapantotypes (MEHLHORN et al. 1985)
1987		16 approved and 10 rejected ciliate species on the official list of names in zoology (cp. AESCHT 2001)
1994		Catalog of type specimens in the International Protozoan Type Collection (COLE 1994): for 159 ciliate species 15 syn-, 30 lecto- and 24 neotypes are included
1999	Fourth edition of the ICZN; name-bearing types must be fixed (designated) originally for nominal species-group taxa and deposited in a permanent collection (Art. 16.4, 72.3)	
2001		Catalogue of the generic names of ciliates (AESCHT 2001): 13 approved and 20 rejected ciliate genera (of 2701 generic names treated in this paper) on the official list of names in zoology
2002		General article on neotypification of protists (FOISSNER 2002) and inclusion of its rationale (e.g. FOISSNER et al. 2002; BERGER 2006)

"type" material for protists, especially ciliates (see chapter 5.2.2). Apart from the "Catalogue of the Generic Names of Ciliates" (AESCHT 2001) – it is a further step to evaluate the nomenclature of this important group of organisms from bottom-up and to contribute to the dissemination of their biodiversity data. In future years, hopefully protistologists will become increasingly interested in such a "storing" activity and (re-)examining "type" and voucher material as part of their research.

2 Background and terminology

2.1 Nomenclatural steps

In zoology, more than in protistology, since the beginning of the 20th century a vast majority of taxonomists has followed the rules of the ICZN (1999). Its object is not to deal with the theory and practice of classification of organisms (taxonomy; see also chapter 5.2.4), but to provide rules for the automatic and universal establishment of the unique valid nomen of a given taxon (nomenclature) in any given taxonomic frame. According to DUBOIS (2005a, 2006b, c) this establishment is a three-step process that includes rules first for the nomenclatural **availability** of nomina (through publication and respect of precise criteria; first floor of the "nomenclatural house"), then for their **allocation** to taxa (through "typification"; second floor) and

finally for their **validity** (through priority; third floor): once made nomenclaturally available through publication following certain conditions, a given nomen is unambiguously allocated to a given taxon in any given taxonomy through the use of a "name-bearing type" (cp. also DUBOIS & OHLER 1997a, b, DUBOIS 2007, DUBOIS & NEMÉSIO 2007).

The rules and arcane intricacies of the ICZN (1999) are not easy to understand and often ambiguous (chapter 5.1), of course taxonomy is more interesting than nomenclature. For strengthening the distinctiveness of these two sides of a coin (chapter 5.2.4), DUBOIS (2000 and references therein) proposed the term **onymology** (from the Greek onymos, "name" and logos, "speech") and several further terms, some of them are followed here and thus introduced for the protistological community in parallel with ICZN terminology, simply because they are short and more precise (see below and Glossary at the end of the paper). Misinterpretations most often repeated are that "types" allow to define taxa and represent a survival of typological ideas in evolutionary biology (cp. discussion in DUBOIS 2005a). However, the function of the name-bearers ("types") is not to provide taxonomic information on characters (although it may "incidentally" do so), but to tie the nomen to a living (or once living) population of organisms and so establishing an objective and permanent connection between the real world of organisms and the world of language (DUBOIS & OHLER 1997a, b, DUBOIS 2006b; DASTON 2004). This makes the ICZN a theory-free nomenclatural (onymological) system allowing the unambiguous nomination of taxa within any taxonomic system. To definitely avoid such basic confusions, it is better to abandon the use of the term "type", and its derivatives, in biological nomenclature, and to replace it by SIMPSON'S (1940) special technical term **onomatophore** and other new terms, e.g. onomatophoront moreover perfectly parallels the taxonomic term semaphoront of HENNIG, which do not have this misleading connotation (cp. DUBOIS 2000, 2005a, 2007). Interestingly, according to the "Oxford Dictionary of English Etymology" (ONIONS 1966) the word specimen means "characteristic example", thus it is tautologuous to "type". Furthermore, as DASTON (2004) noted the very term "type specimen" is an oxymoron, which is only accidentally, not essentially, a representative sample of the species.

I am convinced that adoption of such precise technical terms and standardisation of the presentation of name and material lists would greatly enhance communication between taxonomists and with other members of the scientific community, especially within the frame of the development of international electronic connections which encourage the creation and world-wide diffusion of large computerized databases dealing with the nomina of organisms (cp. DUBOIS 2000).

2.1.1 Availability of a name

The availability of a name is an objective matter that can be verfied by an examination of the conditions under which it was first published. It is important to realise that the rules for nomen availability have changed through time, and these rules nowadays are much more stringent than in the past (DUBOIS & NEMÉSIO 2007). All the preceding articles existed, in similar or slightly different forms, in the past editions of the ICZN until the so-called third one (ICZN 1985), and none of them mentioned the need, for availability of nomina, of the existence of an onomatophoront ("holotype, syntypes, lectotype or neotype"). However, an important change was brought in the fourth edition of the ICZN (1999 Art. 16), which added several requirements for availability of nomina published after 1999 (Art. 72.3). Criteria of availability are mostly described in chapter 4 (Art. 10 to 20) of the ICZN, but also in chapter 1 (Art. 1 to 3). These new requirements include the need of an explicit statement of the intention to establish a new nominal taxon, and, above all, the need of fixation of the name-bearers ("types"; see below) for any new specific or subspecific nomen.

Regarding the first floor of the "nomenclatural house", DUBOIS (2000) recognized two categories of nomina: **hoplonyms** (from the Greek hoplon, "arm, weapon") are nomina published through respect of all ICZN's criteria of nomen availability, whereas **anoplonyms** (from the Greek anoplos, "unarmed") are nomina published but not respecting all these criteria, and therefore nomenclaturally unavailable (i.e., "non-existent" in zoological nomenclature).

The botanical practice of citing basionyms is informative, because it refers to the correct original and still available name (MCNEILL et al. [ICBN] 2006); however, it is inconsistently applied in zoology, particularly protistology (except the revisions of the FOISSNER group since the 1990s; BERGER 1999, 2006). Thus for zoological concerns DUBOIS (2000) suggested the new, slightly different term **protonym**, which is followed herein. The concept of protonym is distinct from that of basionym used in the botanical code (MCNEILL et al. [ICBN] 2006). The basionym is the correct spelling (in the precise onymological sense of this term) of the original hoplonym (see Glossary), while the protonym is the original spelling, rank and onymorph (see Glossary) of the latter. In many cases, the original spelling is correct, so that the basionym is also the protonym, but in the cases where the nomen as published in the original publication is incorrect under the current ICZN (1999), the basionym will correspond to one of the aponyms of the hoplonym. Thus, for example, the familial nomen Colepina published by EHRENBERG (1838; reference in

Tab. 7) is incorrect under the current rules, but it remains nevertheless the protonym of the family Colepidae currently in use. As understood here, the concept of aponym applies to all changes in spelling, even very slight, e.g. bearing on a single letter or considered by the current ICZN (1999 Art. 58) as "variant spellings deemed to be identical".

2.1.2 Allocation of a name to a taxon

Under the ICZN, allocation of a nomen to a taxon is distinct from its availability. It does not rely on the conditions used for availability of the nomen on the first floor, but it is made through the use of a special tool, the so-called "type" or name-bearer (ICZN 1999 Art. 61-76), replaced here by onomatophores. Some 24 pages of the ICZN are devoted to the "type-concept" in zoology; one-third of these deal specifically with the problem of "type" specimens. Fixation or designation means that, to be available, a new nomen must have been created associated with the fixation of a holophoront ("holotype") or symphoront ("syntype"). By itself, this statement simply requires this designation, but not clearly that the onomatophoront be preserved after designation and description, as discussed in detail by DUBOIS & NEMÉSIO (2007; see also chapter 5.1.2).

Onomatophores are of different kinds in the three nominal-series recognized by the ICZN: they are specimens (onomatophoronts) for nomina of the species-series, but taxonomic concepts above this level, viz. species-series nominal taxa (nucleospecies) for nomina of the genus-series and genus-series nominal taxa (nucleogenera) for nomina of the family-series. However, ultimately, through this chain of onomatophores, each nomen refers to one or several organisms. Thus an onomatophore-based nomen is **not defined**, either by **intension** (characters or relationships) or by **extension** (list of included or excluded organisms or taxa), but **attached** to some members of the taxon (individuals or taxa) by **ostension** (e.g. DASTON 2004; DUBOIS 2005a, 2006c). This is not a "definition" of the nomen, as it does not provide limits for the taxon designated by the nomen; such limits are given by the taxonomic arrangement adopted, i.e., by the other taxa recognized within the same nominal-series (DUBOIS 2006a).

2.1.3 Validity

Validity differs from allocation and availability in that the latter refers to the acceptability of the name for use in nomenclature, whereas validity involves taxonomic decisions on limits of taxa. Validity refers to the "rights" of a name in relation to homonyms and synonyms. "Invalidity" may also concern unjustified emendations or unjustified replacement names. Concerning the present catalogue it has to be emphasised that it is important to distinguish objective and subjective synonyms: The first have the same onomatophoront, thus are homotypic, while the latter have different ones, i.e. are heterotypic. In the second case two correct (available) names may remain in use along side one another, since the ICZN (1999) only determines the correctness of a name, not whether the taxonomic interpretation is correct. It is at the discretion of the authors (or other scientists) to decide which correct name they choose to use, provided it is consistent with the circumscription they are using.

'Validating' taxa is part of taxonomic decision-making which, at the species level for example, comes from the examination of series of specimens and is justified by the resulting analyses and comparisons with related taxa. After that, the justifications are open to acceptance or rejection by human interpretation, thus subjectivity is unavoidable on this step. There is nothing 'valid' about them anyway, in the sense of physical laws are valid (cp. DUBOIS 2005a).

2.2 Curatorial practice

The actual techniques or procedures for handling "types" in repositories are quite often not clearly understood and have been a factor in the apparent lack of interest in this important activity (cp. CORLISS 1972a). As until now there exists no training for curators, at least in Austria, and I started quite naive in 1992, the situation found and the curatorial activities undertaken are shortly described below.

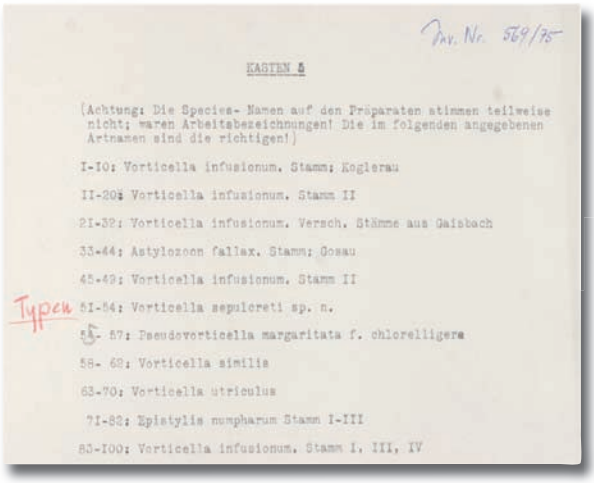
The three curatorial steps, something different from the nomenclatural steps (see above), may be summarised as follows:

Stage 1. Registration of deposited material, i.e. creation of the initial file with basic information of the label, viz. unpublished evidence, such as genus and species name, original "type" designation, sampling site, preparation method and addition of an inventory and storage number.

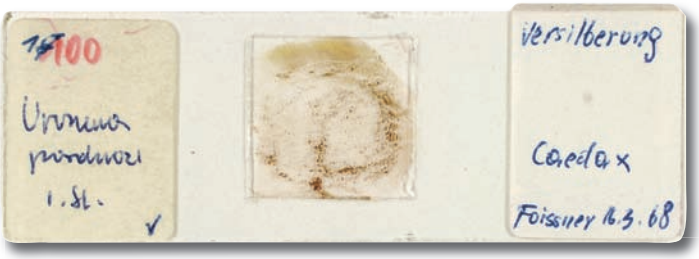
Stage 2. Verification: Editing the file against primary sources, viz. published evidence, in the light of the accumulated data, which involves linking and basic standardisation of binomen, reference and geographic locality via codes, i.e. unique identifiers.

Stage 3. Validation: Shaping the register as an authoritative tool on "typification", fully in accordance with the ICZN (1999), by getting input from specialists and by incorporating information on further neotypification and possible

1



2



3

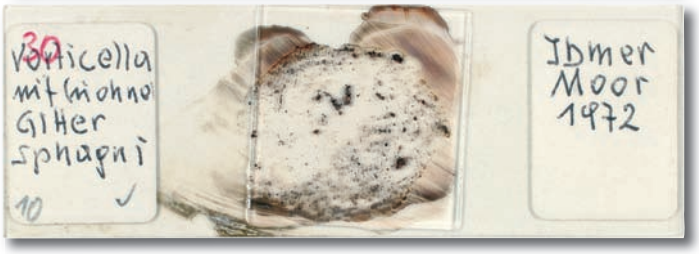
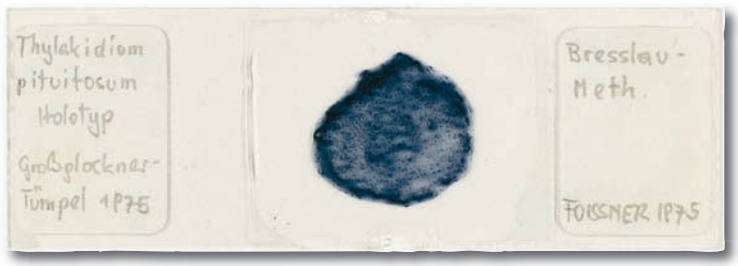


Fig. 1-3: In the 1970s, here 1974, "types" were only mentioned on an external sheet of paper (**1**) and the slides were sparsely labelled, viz. "untypified", without location and detailed preparation method ("Versilberung" means dry silver nitrate in **2**), e.g. slide of *Uronema parduczi*, collected in 1968 (inv. no. 1974/101; **2**) and slide of *Pseudovorticella sphagni* (inv. no. 1974/230; **3**).

4

5

6



7

Fig. 4-7: Since 1981 a list was fixed in the box (**4**) enlighting the status and preparation method of the slides (Fernandez-Galiano-Meth." means silver carbonate). Slide of *Colpoda aspera* (inv. no. 1981/30; **5**) labelled incorrectly as "paratype", viz. a component of the original "type" series, instead of "neotype", viz. newly designated "type" when the original "type" specimen is lost. Two slides of *Thylakidium pituitosum* (inv. no. 1981/72, 73; **6**, **7**) each labelled as "holotype", because of different preparation methods, viz. opal blue of Bresslau and dry silver nitrate ("Trockene Meth."). Note that usually more than one cell is marked.

Fig. 8: Original storage box of FOISSNER (inv. no. 1988/101-200) including a descriptive list fixed on the left side, compared to **7** the preparation method was omitted likely because the protargol one prevails.

lectotypification, as well as other critical annotations. This step is at its very beginning of course. In practice, registration, verification, and validation – as partially the nomenclatural steps (see above) – certainly are not sharply delimited phases and often merge into each other as a single process.

2.2.1 Registration

For an overview of the history of protistology in Austria and the protist collection in Linz, including short biographies of the main contributors, and the curatorial staff before 1992 (the beginning of my job) see AESCHT (1994, 2003a).

Between 1974 and 1991 12 boxes with about 100 slides each (e.g. Fig. 8) received accession (convolute) numbers of the invertebrate collection curated by my colleague, Mag. Fritz GUSENLEITNER, an entomologist. Since 1992, 26 boxes were added. In 1993, when a computer for each curator became available, I started a database with an inventory of individual slides (not specimens) and the basic fields (genus, species, original designation on label, inventory and storage number, preparation method, sampling site and collection date). Later entries were cross-checked and linked via unique identifiers with the relevant publications (see above).

The previous and incoming slides largely remain in their original boxes (Fig. 8), because a systematic storage by taxonomic classification is impossible since numerous different species are usually included on one slide (Fig. 13-16, 25, 26, 35, 36) and in any case a storage number is necessary for retrival. Moreover, lists have been fixed in the boxes mainly between 1975 and 1988 or were supplemented freely (Fig. 1, 4, 8), enlighting the status of the slides sometimes not exactly stated on the labels (Fig. 2, 3). Single or few incoming slides are collected in boxes per year registered. Thus, the collection including "type" and voucher material is arranged in chronological order and stored in a lockable metallic cabinet. Solely historical voucher material is stored in another system and room.

Labelling was successively refined, which is documented her for the first time by photographs of differently prepared, marked and labelled "type" slides (Fig. 2,

Fig. 9-12: Variants of designating terms: "genotype" slide, viz. "neotype" omitted (inv. no. 1984/76; **9**); "hologenotype" ("Hologenustyp") slide (inv. no. 1998/56; **10**); "neoholotype" slide (inv. no. 1999/15; **11**); "syntype" to "neotype" slide (inv. no. 1988/126; **12**).

3, 5-7, 9-36): Early "types" were mentioned on an external sheet of paper (Fig. 1), since 1975 directly on the label (e.g. Fig. 5-7). About ten years later, "If appropriate, the type slides are accompanied by an equally – sized sheet of paper, which states the species and the kind of types contained (H – holotype specimen, N – neo (holo) type specimen, P – paratype specimen, V – voucher). The specimens which served as a basis for the illustrations are marked by the letter "D", for instance, PD = paratype used for illustration. The holotype specimen (H), of course, has been drawn. Note that some slides contain types of several species, which are distinguished by different colours or letters" (Fig. 31-36; FOISSNER et al. 2002).

The usual curatorial practice to store name-bearers preferably separately from general collections (vouchers) is at present not followed exactly, because of the uncertain status of numerous "types" and now coherent populations can be retrieved for checking with minimum fuss and maximum efficiency. As, yet no remounting – in case of air intrusion – was performed, because this may destroy the black ink or felt tip pen circle(s) of relevant specimens on the cover glass or on the back of the slide. This problem has to be solved in future, a first step will be photographical digitalisation of the slides. Moreover, it requires that fixation and prepartion methods are described in more detail by the depositor if differing from standard procedures.

Due to the restricted space on a label, many data have still to be reconstructed, e.g. the collector (legator) usually can only be found in the publication; the depositor of the slide(s) may be different from the collector or publishing author (cp. Tab. 2 and chapter 3); the determinator unfortunately remains usually unknown, likely the senior author of a publication can be assumed.

2.2.1.1 Puzzle: name on label versus in paper

Of course numerous changes in names of taxa have been recorded, viz. discrepancies between label and (further) papers as a result of provisional names, misidentifications, change in rank (e.g. species to subspecies) or as a result of transfer to another genus. "Type" specimens of invalid species (as junior synonyms, junior homonyms, unjustified emendations, unnecessary substitute names) are also listed. In that case, the current status is specified, as far as known. No other synonyms are provided. Misapplied (i.e. misidentified) and synonymised names are only indicated in this paper, but original labels remain unchanged and are supplemented by further printed information on a sheet of paper in the size of a slide.

In 38 instances names on the labels do not correspond to those published, partially due to provisional, never published denominations (e.g. "*Pelagothrix asymmetrica*" and "*P. minuta*" instead of *P. plancticola*, "*Calvobakuella terricola*" instead of *Eschaneustyla brachytona*, "*Fuscheria flatscheri*" instead of *F. terricola*, "*Drepanomonas bispinifera*" instead of *D. exigua bidentata*, "*Enchelydium terricola*" instead of *E. terrenum*, "*Urotricha parafurcata*" instead of *U. pseudofurcata*; these unavailable names between quotation marks are disclaimed here for nomenclatural purposes according to ICZN 1999 Art. 8.3), partially due to a slip in genus (e.g. *Podophrya terricola* instead of *Sphaerophrya t.*) or slightly changed endings. Such inconsistencies are quite time-consuming and should be avoided before depositing slides. Some depositors seemingly assume that labelling is performed in a standardised form by the curator (Fig. 29, 30), which is not the case since according to Rec. 73C, D of the ICZN (1999) the label has to original. Since original labels have to be preserved in any case during curatorial practice, quite a lot of additional

Fig. 13-16: Frequently more than one species is important in one sample, thus the respective marks and designations became different to distinguish: five species (inv. no. 1984/8; **13**); two species, two categories of "types" and three marks (inv. no. 1989/18; **14**); invitation to look at the specimens (inv. no. 1988/168; **15**); 6 marks of "paratype(s?)" and ontogenetic stages (inv. no. 1993/35; **16**).

sheet of papers may accumulate and cross-referencing in databases becames more and more complex.

2.2.1.2 Puzzle: date

If any, usually only a year is given on a slide label, which may refer to the sampling date, the year of preparation or of publication (Fig. 17-19, 21, 28). The deposition is often performed only years after preparation and investigation and the date of collection have to be reconstructed, which may be difficult, because it is quite often not detailed in the published original description. Concerning the category of "types", the dates can be of crucial importance: if they are unspecific or inconsistent the question of original material arises. Conflicting dates have quite often been recognized particularly in neotypification, e.g. *Geleia decolor*. In most cases, the evaluation and acceptance of a "type" depends on rigid assessment of information on identities of collectors, "type" localities and dates of collection (a number of supposed "types", previously accepted, have had to be rejected because there were patently collected after the date of publication of the description or because there was no certain date of collection). Thus it is recommended to give the complete collection date, viz. including day and month (Fig. 16, 27), on the slide label and the preparation method as well as prospective publication year on an accompanying protocol, i.e. a sheet of paper equally sized to the slide (Fig. 31-36; see chapter 5.3).

2.2.1.3 Puzzle: "type" locality

Traditionally, geographic locality was not thought to be a significant factor since many protists are cosmopolitan in their distribution, which is severely discussed today (see chapter 5.2.1). Unfortunately, the site is often missing on the label (Fig. 2, 13, 14, 16, 19, 22, 23, 28-

Fig. 17-20: Four slides of DRAGESCO referring to the year describing the new species; note the multiple marks for *Trachelolophos setensis* (inv. no. 1997/1, 2; **17**, **18**) and *T. binucleatus* (inv. no. 2002/853; **19**), where the location was omitted; the original label to the left was supplemented by a designating one (inv. no. 2002/853; **20**).

Fig. 21-24: Label modifications of co-workers of FOISSNER: partial introduction of computer print (inv. no. 1989/37; **21**); arrows instead of circles (inv. no. 1993/31; **22**); square marks likely refer to dividing specimens (inv. no. 1993/45; **23**); unspecific "types" (inv. no. 2000/147; **24**).

30), or only the country is given (Fig. 12, 21) and moreover often hidden in the publication, viz. ignored in neotypification. Although the "neotype" locality replaces the original one (ICZN 1999 Art. 76.3), for comparative and historical reasons both should be included separately in a revision. "Type" locality seems even be underestimated in the Zoological Record, since only states are given, e.g. for *Trachelorаphis exilis* "France". Inclusion of the (micro)habitat is strongly suggested concerning protists, viz. at least if a species occurs limnetic, marine, terrestric, symbiotic or parasitic. Geographical coordinates – as recommended in the ICZN (1999 Rec. 73C.2) – have only recently been included in the papers and are thus usually lacking on label; now numerous databases in the internet may help including them (see cp. chapter 7, Internet base information).

2.2.2 Verification

Verification is not a simple procedure that can be accomplished once for all time but a virtually never-ending process, which seems to expand in direct proportion to the number of specimens and publications examined. Comparison of the original description with data from one or more specimens rarely can be made without uncovering at least minor discrepancies that must be reconciled.

There are several complicating factors. Some of the early labels are nearly unreadable (e.g. Fig. 3), some of the authors did not provide sufficient information on the labels (Fig. 29), and sometimes there are mismatches between putative "types" and original descriptions, because in many cases the descriptions as well as labels do not provide unambiguous information regarding the number of slides or specimens (see below). A question mark is added when, for one reason or another, I am uncertain about the status of the specimens and/or an involvement of the Commission seems to be necessary.

2.2.2.1 Puzzle: "type" designation – original versus subsequent

Two categories of "typification" ("type" designation) may be discriminated, viz. original or subsequent. If a notice of the designation and deposition of the "type" specimens is included in the first publication on the new species (termed **symphory** by DUBOIS 2000) it is considered as **originally** "typified", sometimes termed primary "types" (an expression not included however, in the ICZN 1999). Different steps of refinement can be recognized:

(i) Since 1984 often unspecific designations of "type" material were performed, later holo- and paratypes, sometimes "holo- and syntypes, depending on the variety of methods used" are announced (e.g. FOISSNER 1997, FOISSNER & PFISTER 1997).

(ii) Specific and detailed "typification", although sometimes inconsistently in paper and on slide, including syn- and hapantotypes.

However, sometimes "typification" has – probably par lapsus – not been mentioned in the paper (e.g. FOISSNER 1987, FOISSNER et al. 1999, FOISSNER 2003a, FOISSNER & XU 2007), but slide(s) are labelled as different sorts of "types" (Fig. 1-5, 8, 10, 12, 15), thus they are treated as subsequently designated herein by the original author.

Until 1999, the ICZN allows a **subsequent** fixation of onomatophores for nominal taxa first created, i.e. published, without onomatophores. This category is applied if a designation is not mentioned in the paper of the relevant species (termed **aphory** by DUBOIS 2000),

Fig. 25-30: Label modifications of various depositors: species names may change (inv. no. 1992/11, 1992/4; **25, 26**); "syntype" with five marks, unfortunately location and preparation method are omitted (inv. no. 1997/40; **27**); apart from the arrow further marks may indicate "paratypes", which remained however unmentioned in the reference cited (inv. no. 1998/94; **28**); almost invisible informations (inv. no. 2000/155, 2003/45; **29, 30**).

but slides were rediscovered, sometimes termed secondary "types" (not included however, in the ICZN 1999). Two possibilities of a subsequent fixation may be distinguished:

(i) deposited (usually later), though unlabelled as "type", but accompanied by a respective, viz. "typifiing" sheet of paper (1974-1983) or original material is indicated by "n. sp.", sampling locality, date, and/or reference to the respective paper of (re)description (Fig. 1, 17-20).

(ii) labelled as "type"; often yet incorrectly as "paratype", viz. components of the original "type" series, instead of "neotype", i.e. newly designated "types" when the original "type" specimen is lost (from 1981 to 1986) or genotype, i.e. formerly used for "type" species, but now not recognized by the ICZN (1999), instead of "holotype" (Fig. 5, 9, 24, 30; e.g. FOISSNER from 1984 to 1987; DRAGESCO & DRAGESCO-KERNEIS 1991; SONG & WILBERT 2002). Several slides were designated as "type", viz. labelled, but no published (re)description could be located, thus they are no "type" material according to the ICZN (1999) and in fact vouchers (see chapter 4.2). Neotypification remained unmentioned mainly in the 1980s (e.g. WIRNSBERGER et al. 1985a, b; AUGUSTIN & FOISSNER 1989), thus symphory of new taxa and aphory of neotypification occur simultaneously (FOISSNER 1984, 1985, 1987a, b, 1988a, b; BLATTERER & FOISSNER 1988; BERGER et al. 1984, BERGER & FOISSNER 1987; SONG & WILBERT 2002). Thus, numerous slides were found only neotypified on the label.

2.2.2.2 Puzzle: category of "type" – single versus multiple specimens

Type terminology can be confusing, and people have differed in their interpretation of what constitutes which category of "type", for instance combinations of "holo- and syntype" or extensions of parahapantotype or "holo- and paraneotype" occur (cp. e.g. BERGER & FOISSNER 1989; for further examples see chapters 3 and 5.1.3; Fig. 9-12). Such constellations are however, not mentioned in the ICZN (1999).

Very often no indication can be found in the original description about the number of slides and even more rarely on specimens which were at the authors' disposal. Due to the fixation and preparation processes it is almost (except the dry silver and silver carbonate impregnation) impossible to single out one specimen on one slide; on the contrary, usually a series of eight slides is prepared per population and site (cp. FOISSNER 1991, FOISSNER et al. 2002). In such cases relevant cells should be marked according to Rec. 92C of the ICZN (1999). Moreover, FOISSNER explicitly states that "since only rarely a single individual reveals all necessary diagnostic characters, several specimens are marked on one holotype slide" and/or several differently stained prepara-

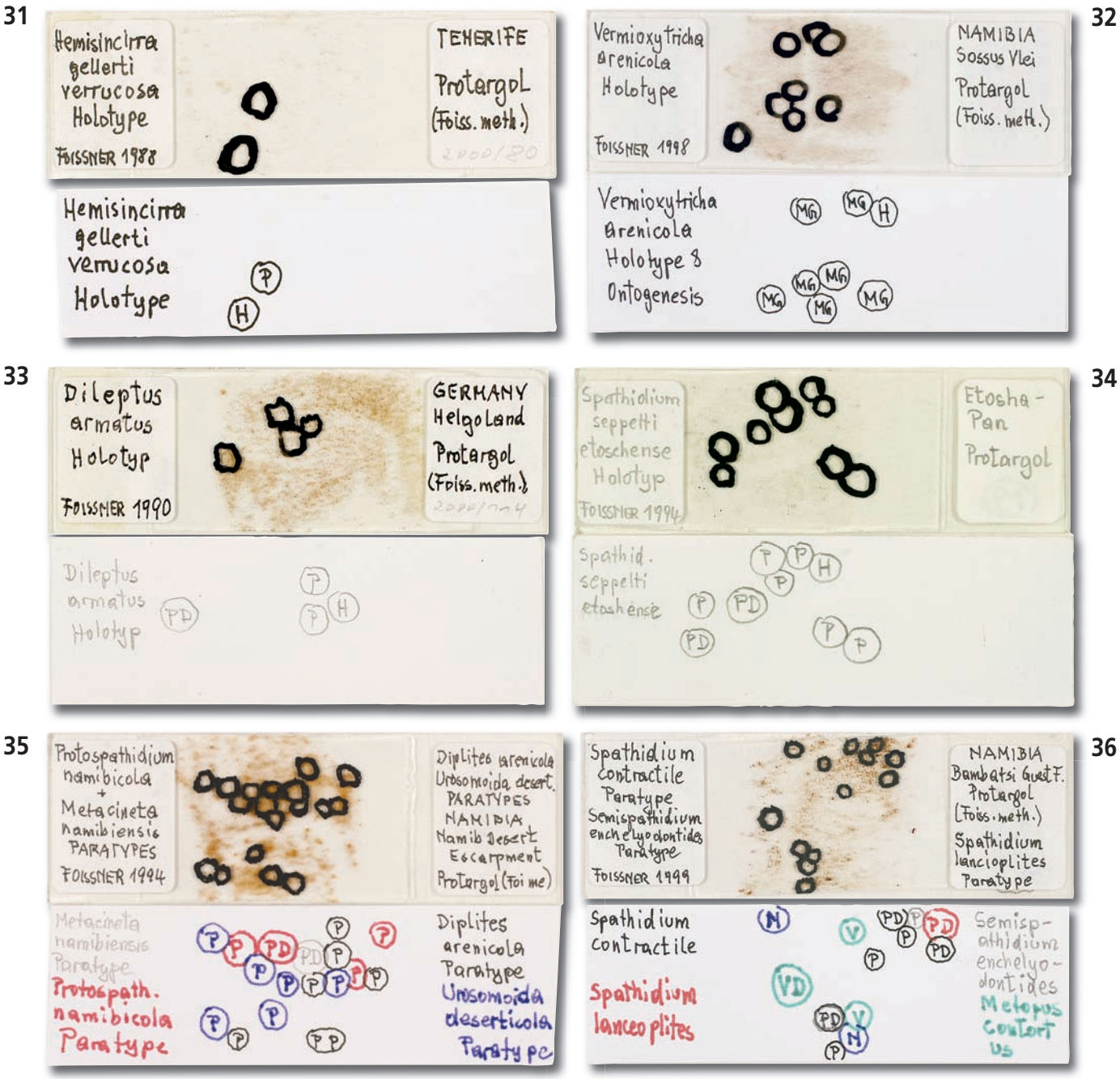


Fig. 31-36: Labelling was successively refined, thus supplementary "protocolls" became crucial to recognise further designations: two marks, but different designations (inv. no. 2000/80; **31**); eight marks, except one referring to dividing cells (inv. no. 2000/80; **32**); specimens which served as basis for illustrations are marked by the letter "D" (inv. no. 2000/114, 2002/1; **33, 34**); colours are used to differentiate the species and even vouchers became marked (inv. no. 2002/258, 2002/342; **35, 36**).

tions are declared as "holotype" in many cases. Seldom, a ventral and dorsal view are designated as "holotype" (e.g. for *Australocirrus zechmeisterae*). This conflicts with the definition given in the ICZN (1999) stating that "A holotype is the single specimen upon which a new nominal species-group taxon is based" (Art. 73.1; cp. chapter 5.1.3, 5.2.4.2, 5.3.1). Generally, symphoront status is assigned if the description is explicitly based on several specimens (Fig. 2, 3, 6, 17, 18) without specification, i.e. one mark, of a "holotype" (Fig. 7, 9, 11, 17, 19, 21-24). If more slides refer to a species, the existence of symphoronts is assumed in accordance with Rec. 73F (ICZN 1999; "Avoidance of assumption of holotype").

In 1985 the concept of a hapantotype (ICZN 1985 Art. 72c, iv; ICZN 1999 Art. 73.3) has been established for the sake of a particular group of specialists, viz. parasitologists working with protists (CORLISS 1972c; GARNHAM et al. 1979; MELVILLE 1979, 1980; WILLIAMS 1980). A hapantotype (from the Greek apas, apantos, "together" according to MELVILLE 1980) consisting of

one or more preparations or cultures may be designated when a nominal species-group taxon of extant protists is established. Further it is explained that directly related individuals representing differing stages in the life cycle are concerned. This strictly not only refers to polymorphic parasites, for which hapantotype is much more commonly used than for ciliates (see chapter 5.1.3). For the latter, ontogenetic stages, i.e. morphogenetic series (Fig. 24), and "one or more preparations" (Art. 73.3) would be excellent candidates for hapantotypes. Since polymorphism is common in many protistan life cycles (CORLISS 2002), this category would be the most appropriate for this group of organisms. The main difference to a "syntype" (Fig. 27) is that no lectotype can be singled out in a hapantotype, because it is deemed to be indivisible (cp. ICZN 1999 Art. 73.3.1).

Since 1986 "neotypes", although inconsistently mentioned in the respective paper, increasingly "typify" the many redescribed ciliate species lacking "type" material. In addition to problems with some conditions of the ICZN (cp. chapter 5.1.3), e.g. the recommended rationale was first included in 2002 (FOISSNER et al. 2002: 36), usually more than one specimen is marked (Fig. 5, 10, 12) on one or many more "neotype" slide(s), thus quite a lot of cases will need an application to the Commission (see chapter 5.1.4).

At present, it has not been possible to identify figured specimens individually in the collection; this will at best be performed during specific revisions. Usually the "holotype" specimen has been drawn (cp. FOISSNER et al. 2002: 36), only recently further specimens used for illustration are indicated (see Fig. 33-36). Likewise, it was not checked if only one specimen is marked, thus a single mark is acknowledged as holophoront, but no or more than one mark on one or more slides are considered as symphoronts herein. But note, that concerning refined labelling, additional "protocolls" may be crucial (see Fig. 31-36). Moreover, specimens lacking locality specifications are considered as symphoronts herein, since they may come from more than one "type" locality (cp. ICZN 1999 Art. 73.2.3). Likewise, the adequacy and permanency of particularly silver carbonate and dry silver nitrate slides have not been checked.

2.2.2.3 Puzzle: "type" deposition – fact versus fiction

There exist many discrepancies between deposition and repositories mentioned in a publication and actually deposited slides. The following possibilities can be distinguished:

(i) Paper in accordance with slides present.
(ii) Deposited, but sometimes less or more slides as indicated in the paper, thus they are perhaps missing in further repositories if mentioned.
(iii) Said to be deposited at Linz in the original publication, but not yet presented to the museum corresponding to a false symphory (Tab. 3 in chapter 4.3). Completeness of this table is unlikely, because some papers were only traced by chance, viz. author(s) did not contact the museum concerning the deposition.
(iv) Unmentioned in the original publication, but deposited, sometimes years later, thus corresponding to a false aphory.
(v) "Type" material supposedly mentioned in a revision, but deposition not verified, e.g. *Gastrostyla steinii* in BERGER (1999: 791); voucher of *Oxytricha siseris* in BERGER (1999: 187).

2.2.3 Validation

Validation involves if "typification", specifically the designation of kind or status of "type", is in accordance with the ICZN (1999) and such matters as rank, priority, synonymy and homonymy, authorship, and orthography (misspellings or missapplied, i.e. unavailable names; necessary corrections of endings). This is at the very beginning as evident from chapter 3. Correct names and further data are taken from a combination of labels and published information and are edited into a more-or-less consistent format. Discrepancies between the two sources are common but it is usually clear as to which is the more reliable. It is not the purpose of this paper to resolve all these problems where they arise; rather, subsequent specialists and revisers should judge for themselves. Thus, **under no circumstances is this catalogue being intended to be used as a place to designate "neotypes" and "lectotypes" and thereby to set nomenclatural precedents**.

2.3 Presentation of items

For the presentation of the "type" catalogue, no particular "protistan" style could be adopted (cp. chapter 1). Due to the restricted space on the one or two labels on a slide, the information are usually quite sparsely, thus the label text is not quoted in this paper. Moreover, slides are intended to be photographically digitalised in future. Several examples of variing slide and label appearance are documented here for the first time (Fig. 2, 3, 5-7, 9-36).

The specimen information necessarily is organised by taxonomic name. All items are arranged alphabetically according to species name for an easier location due to the frequent recombinations of protist taxa. Subspecies are listed under the species name. The names of all "types" listed in this catalogue have been checked against the original descriptions and spellings are taken as they were published. In case of discrepancies with the labels or attached sheet of papers, this has been ex-

plained under the heading ‚Remarks'. If not stated otherwise, the taxon name is valid as originally published; if single species have been synonymised or placed in different genera, the at present valid name and a detailed reference is given under "Remarks". Thus the register is not purely a slide and even less a specimen register; the data are organized for storing and retrieving all information related to the slide collection. A full entry (record) in the catalogoue is, therefore, a synthesis of data from the slide and the library (note chapters 8 Abbreviations and 9 Glossary). The "type" catalogue presented here reflects the state of the **LI**, i.e. official acronym of our institution according to the Biological Repositories Organisation (www.biorepositories.org), protist collection on 31 December 2007; at present deposited, but yet unpublished material has been excluded.

The information on the collection details follows the format:

(1) **Bionomen** applied to the specimen as given in the respective publication, if a misleading name occurs on the label this denomination is noticed in pt. 5. Italics for scientific name of genus- or species-group taxa are used as recommended in appendix B6 of the ICZN (1999). Unavailable nomina (anoplonyms) are presented between quotation marks following for instance DUBOIS (2000) and AESCHT (2001).

(2) **Original author(s) and date of publication**, usually lacking on label, are given in brackets if recombined followed by the combining author(s) and/or after the sign [–] the redescribing author(s) and year of publication. If the combining author(s) correspond(s) to the redescribing and designating one(s) the authorship is **not** repeated.

(3) **Reference** including journal, volume (boldface) and page number referring to relevant (re-)description of "type" material. This somewhat longer style and the inclusion of **all** authors was preferred to avoid mistakes in citation if referring only to a, b, c and et al., respectively.

(4) **Onymotope ("type" location)**, is given quite detailed, moreover supplemented by the (micro)habitat or niches (separated by a semicolon), because of the following reasons:

  (i) It was necessary for checking the consistency of material and publication.

  (ii) Information is often incomplete and dispersed, i.e. only country noted on label or particularly concerning "neotypes" locality is hidden in the chapter material and methods of the relevant paper.

  (iii) Numerous geographical coordinates had to be detailed for a prospective inclusion in our biogeographical database ZOBODAT.

  (iv) Moreover, the names of large geographic areas or countries are translated into English, but other names are printed in their local spelling, mostly German or French.

(5) **Category of "type" material**, if uncertain flaged by a quotation mark (?), category of **designation** (original or subsequent) and accession (i.e. inventory) number(s), composed of the year of entrance to the Upper Austrian Museum and running number – separated by a slash (/) – in the collection of microscopic slides at Linz, Austria. Although "paratypes" are no name-bearers, they belong to the "type" series and thus are included to indicated the afford for comparison. The mode of preparation is only given if different from the overwhelmingly used modifications of protargol staining. A semicolon (;) is used between different preparations.

(6) **Remarks** may include

  (i) Designation and/or deposition details (if omitted in the original paper) or further "type" material in other repositories as stated in the original description.

  (ii) Inconsistent sampling places and/or dates (only discrepant collection years are noted).

  (iii) Protonym (see Glossary) including reference, although a specific page is often not given in the revision and/or was not available in all cases and/or current taxonomic status (if different from the original material classification); literature references are provided where the species has been relegated to synonymy. Note that not all possible generic combinations and synonyms of a binomen are included, because this would be the taxonomic side of the coin.

  (iv) Reference to further "typified" ranks, i.e. "type" species of a genus (nucleospecies) or "type" genus of a family (nucleogenus, see Glossary) including literature if different from the original publication.

  (v) Nomenclatural correction of species name endings due to agreement in gender of the genus (ICZN 1999 Art. 31.2).

3 Material

3.1 Ciliophora

A

abbrevescens Deviata EIGNER, 1995 – Europ. J. Protistol. **31**: 343. **OT**: Bottom of a small frozen pond; village of Schrötten near Deutsch Goritz, Styria, Austria (46°47'N, 15°49'E). **HP (od)**: 1994/85 (one mark). **Remarks**: According to this paper the slide (inv. no. stated as "94/3") includes several "paratypes", which are unmarked, and specimens in divisional morphogenesis. Nucleospecies.

abdita Lamtostyla FOISSNER, 1997 – Biol. Fertil. Soils **25**: 330. **OT**: Soil of a rain forest; near Cairns, Queensland, Australia (about 17°S, 145°E). **HP** (unspecific **od** on page 319): 1998/114; **PP**: 1998/115. **Remarks**: Currently *Afroamphisiella a.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 698).

acanthodus Euplotes PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 183. **OT**: Sea ice; Weddell Sea, Antarctica (69°58'S, 07°27'W). **HP (od)**: 2001/131 (one mark); **PP**: 2001/149.

aciculare Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 258. **OT**: Grassland soil from the Botanical Garden; Darwin, Northern Territory, Australia (12°28'S, 130°50'E). **HP (od)**: 2002/711; 4 **PP**: 2002/712, 2002/713, 2002/714, 2002/715.

acrostoma Semiplatyophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 1019. **OT**: Highly saline crust soil; "Moon Landscape" near the river oasis Goanikontes, about 25 km east of the town of Swakopmund, Central Namib Desert, Namibia (22°40'S, 14°45'E). **HP (od)**: 2002/300; 2 **PP**: 2002/301, 2002/302 (all wet silver nitrate method).

acrostomia Askenasia KRAINER & FOISSNER, 1990 – J. Protozool. **37**: 422. **OT**: Excavated groundwater ponds; near Graz, Styria, Austria (47°04'N, 15°25'E). **HP** (unspecific **od** on page 415): 1992/3; **PP**: 1992/2.

acuta Amphisiella FOISSNER, 1982 – Arch. Protistenk. **126**: 35. **OT**: Soil of an alpine pasture; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **HP (sd)**: 1981/85. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Paramphisiella a.* and nucleospecies of the latter genus (Tab. 6) according to FOISSNER (1988, Stapfia **17**: 121).

acuta Cyrtolophosis KAHL, 1926 [Arch. Protistenk. **55**: 379] – FOISSNER (1980) Zool. Jb. Syst. **107**: 409. **OT**: Soil; Großglockner area, Salzburg, Austria (about 47°N, 13°E). **NP? (sd)**: 1981/19 (silver carbonate method). **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". No precise site given, neither in the original paper nor the reference given. Likewise KAHL did not indicate a locus classicus. FOISSNER (1993, Protozoenfauna **4/1**: 547) proposed Bad Gastein to be fixed as locus classicus. Two slides from Greece/Peloponnes (inv. no. 1988/59, 60) also labelled as "neotype" are thus considered as vouchers.

acuta Grossglockneria FOISSNER, 1980 – Zool. Jb. Syst. **107**: 399. **OT**: Soil of a small valley; near the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). 2 **SP (sd)**: 1981/13; 1981/14 (wet silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but two slides are labelled as "holotype", because of different preparation methods, and "genotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

adami Holosticha FOISSNER, 1982 – Arch. Protistenk. **126**: 46. **OT**: Soil of a snow pocket; near the Wallack-Haus, Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). **HP (sd)**: 1981/89. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Anteholosticha a.* according to BERGER (2003, Europ. J. Protistol. **39**: 377).

aediculatus Euplotes PIERSON, 1943 [J. Morph. **72**: 138] – AUGUSTIN & FOISSNER (1989) Lauterbornia **1**: 42. **OT**: Activated sludge plant Zellhof, Salzburg, Austria (47°59'N, 13°6'E). **NP? (sd)**: 1993/66 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in the original paper, but slide designated and species redescribed.

affine Gonostomum (STEIN, 1859) STERKI, 1878 – FOISSNER (1982) Arch. Protistenk. **126**: 77. **OT**: Soil of a beech forest; village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **NP? (sd)**: 1981/86. **Remarks**: "Typification" not mentioned in the original paper; but slide designated, although mislabelled as "paratype". A further slide (inv. no. 1982/79) deposited was collected later in Salzburg, thus voucher. Protonym: *Oxytricha affinis* STEIN, 1859 – Org. Infusionsthiere: 186. Nucleospecies of *Gonostomum* STERKI, 1878 (Tab. 6).

africana etoschensis Rostrophryides FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 1000. **OT**: Highly saline soil; Etosha National Park, lookout "Etosha", Namibia (18°50'S, 16°30'E). **HP (od)**: 2002/166; 2 **PP**: 2002/167, 2002/168 (all wet silver nitrate method).

africana Oxytricha FOISSNER, 1999 – Biodiversity and Conservation **8**: 381. **OT**: Grass sward soil from a public park; urban area of Nairobi, Kenya (1°20'S, 36°50'E). **HP (od)**: 1999/37; **PP**: 1999/38.

africana Rostrophryides FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 236. **OT**: Highly saline soil on the shore of Lake Nakuru, Kenya (0°22'S, 36°5'E). **HP** (unspecific **od** on page 190): 1988/68 (incorrectly labelled as "genotype"); **PP**: 1988/69. **Remarks**: Nucleospecies. Currently subspecies rank according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 1000).

africanum Paramecium DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 40. **OT**: Not given; Yaounde, Cameroun (3°52'N, 11°31'E). 2 **SP (sd)**: 2003/54 (wet silver nitrate method); 2003/69. **Remarks**: "Typification" not mentioned in the original paper, but slides are labelled as "holotype", because of different preparation methods, thus symphoronts. Slides from different years, viz. 1968 and 1969.

africanum Trachelophyllum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 151. **OT**: Soil from margin of Sirkelsvlei, a small lake in the centre of the Cape of Good Hope Nature Reserve, Republic of South Africa (34°15'S, 18°25'E). **HP (od)**: 2002/570; 2 **PP**: 2002/571, 2002/572.

agiliformis Urosomoida FOISSNER, 1982 – Arch. Protistenk. **126**: 117. **OT**: Soil of a beech grove; near village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **PP** (**sd**): 1982/72. **Remarks**: "Typification" not mentioned in the original paper, but slide designated as "paratype" (four marks); no holophoront known, perhaps yet in the personal collection of FOISSNER.

algicola Gonostomum GELLERT, 1942 [Acta Sci. math.-nat. Univ. Francisco-Josephina Kolozsvar (N.F.) **8**: 23] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 799. **OT**: Litter, roots, and soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). 6 **NP** (**od**): 2002/134, 2002/135, 2002/136, 2002/137, 2002/138, 2002/139. **Remarks**: Five slides labelled as vouchers (inv. no. 2002/135-139), including ontogenesis, but designated as "neotypes" according to their table 1. Considered as junior subjective synonym of *G. affine* by BERGER (1999, Monogr. Biologicae **78**: 370). However, only recently KIM & SHIN (2006, Korean J. Syst. Zool. **22**: 210) published a further redescription of *G. algicola*.

algivora Pseudochilodonopsis (KAHL, 1931) FOISSNER, 1979 – Int. Revue ges. Hydrobiol. **64**: 125. **OT**: Neuston of alpine pools; Hexenküche, Glockner, Salzburg, Austria (47°7'N, 12°49'E). **NP?** (**sd**): 1981/43 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "genotype", which is however, *P. piscatoris*. Protonym: *Chilodonella a.* KAHL, 1931 – Tierwelt Dtl. **21**: 240.

aloisi Gastronauta OBERSCHMIDLEITNER & AESCHT, 1996 – Beitr. Naturk. Oberösterreichs **4**: 10. **OT**: Activated sludge plant at Asten near Linz, Upper Austria (48°13'N, 14°24'E). **HP** (unspecific **od** on page 7): 1997/135.

alpestris biciliata Odontochlamys FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 390. **OT**: Highly saline soil; coast of Curaçao Island, north coast of Venezuela (about 12°N, 71°W). **HP** (**od**): 2002/773; 3 **PP**: 2002/774, 2002/775, 2002/776. **Remarks**: One further slide (inv. no. 2002/777) labelled as "paratype", represents a voucher according to table 1 in their paper.

alpestris Chlamydonella FOISSNER, 1979 – Protistologica **15**: 560. **OT**: Mosses of a streamlet; between Fuschertörl and Fuscherlacke, Glockner-Hochalpenstraße, Salzburg, Austria (47°7'N, 12°48'E). **HP** (**sd**): 1975/50 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; slide "typified" on a sheet of paper, but not on label.

alpestris Odontochlamys FOISSNER, 1981 – Zool. Jb. Syst. **108**: 289. **OT**: Alpine grassland soil; near the Wallack-Haus, Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). 3 **SP** (**sd**): 1981/36, 1981/37; 1981/38 (dry silver nitrate method 1977). **Remarks**: "Typification" not mentioned in the original paper; but three slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. BLATTERER & FOISSNER (1992 Arch. Protistenk. **142**: 102, 106) mention two "paratypes" from the River Ager. This is an incorrect designation, moreover slides have not been deposited. Currently subspecies rank according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 389).

alpestris Pseudocyrtolophosis FOISSNER, 1980 – Zool. Jb. Syst. **107**: 407. **OT**: Soil of an alpine mat; Wallack-Haus, Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). **HP** (**sd**): 1981/18 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Nucleospecies (Tab. 6).

alpinus Dileptus KAHL, 1931 [Tierwelt Dtl. **21**: 209] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 184. **OT**: Moss; Schönramer Filz near Freilassing, Bavaria, Germany (47°51'N, 12°59'E). 2 **NP** (**od**): 1988/6, 1988/7.

alwinae Australothrix BLATTERER & FOISSNER, 1988 – Stapfia **17**: 44. **OT**: Soil of a coastal forest; Royal National Park in the south of Sidney, Australia (35°S, 151°E). 2 **SP** (unspecific **od** on page 4): 1989/62, 1989/63, **PP**: 1989/64. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

ambigua Urosoma DRAGESCO & DRAGESCO-KERNÉIS, 1986 – Faune tropicale **26**: 459. **OT**: Brackish ponds; near Lake Nokoué, Cotonou, Benin (6°15'N, 2°20'E). **HP** (**sd**): 2003/92 (collected in 1978). **Remarks**: "Typification" not mentioned in the original paper, but label refer to this paper. Considered as junior subjective synonym of *U. macrostyla* (WRZESNIOWSKI, 1866) by BERGER (1999, Monogr. Biologicae **78**: 404), which has been neotypified (see below); needs clarification.

americanum Blepharisma SUZUKI, 1954 – FOISSNER & O'DONOGHUE (1990) Invertebr. Taxon. **3**: 682. **OT**: Standing waters and ponds; metropolitan area of Perth, West Australia (31°57'S, 115°58'E). 5 **NP** (**od**): 1988/196 (silver carbonate method); 1988/197, 1988/198, 1988/199, 1988/200. **Remarks**: "Typification" only generally mentioned on page 662. Precise details of the collection sites were not recorded. Protonym: *B. undulans americanum* SUZUKI, 1954 – J. Sci. Hiroshima Univ. Ser. B **15**.; since HIRSHFIELD, ISQUITH & BHANDARY (1965 CI1375: 438) only elevated the rank, they are no combining authors as cited by FOISSNER & O'DONOGHUE (1990).

amieti Euplotes DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 129. **OT**: Not given; Yaounde, Cameroun (3°52'N, 11°31'E). 4 **SP** (**sd**): 2003/86 (wet silver nitrate method); 2003/120, 2003/121, 2003/127 (all dated 1968). **Remarks**: "Typification" not mentioned in the original paper, but slides are partially labelled as "holotype", because of different preparation methods yet symphoronts. Currently *Euplotoides a.* according to BORROR & HILL (1995, J. Eukaryot. Microbiol. **42**: 460). Further slides refer to 1970 (inv. no. 2002/858, Fig. 20) or date from 1985 (inv. no. 2002/887) and 1986 (inv. no. 2003/81) and considered as vouchers.

ammermanni Stylonychia GUPTA, KAMRA, ARORA & SAPRA, 2001 – Acta Protozool. **40**: 75. **OT**: Yamuna River, Delhi, India (28°40'N, 77°13'E). **HP** (**od**): 2000/155 (Fig. 29).

amphacanthus Coleps EHRENBERG, 1833 [Abh. Akad. Wiss. Berlin **1835**] – FOISSNER & O'DONOGHUE (1990) Invertebr. Taxon. **3**: 664. **OT**: Small farm dam 1 km east of the Barossa Reservoir, South Australia (34°56'S, 138°36'E). 2 **NP** (**od**): 1988/189, 1988/190. **Remarks**: "Typification" only generally mentioned on page 662.

amphileptoides Dimacrocaryon (KAHL, 1931) JANKOWSKI, 1967 – FOISSNER (1984) Stapfia **12**: 92. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel near Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). 2 **NP? (sd)**: 1982/54 (labelled as *Dileptoides a.*), 1984/8 (labelled as *Rimaleptus a.*, Fig. 13). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although partially mislabelled as "paratype" referring to population I. A third slide (inv. no. 1984/70) of this series was collected in Germany, thus voucher. Protonym: *Dileptus a.* KAHL, 1931 – Tierwelt Dtl. **21**: 208. Nucleospecies of *Dimacrocaryon* JANKOWSKI, 1967 (Tab. 6).

amphoriforme Epispathidium (GREEFF, 1888) FOISSNER, 1984 – Stapfia **12**: 82. **OT**: Soil of a mixed forest (Asperulo-Fagetum); near village of Baumgarten, Lower Austria (48°22'N, 15°34'E). 2 **NP? (sd)**: 1981/10, 1984/64. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Slides from different sampling dates. Protonym: *Spathidium a.* GREEFF, 1888 – Sber. Ges. Beförd. ges. Naturw. Marburg **3**: 131.

anguilla Spathidium VUXANOVICI, 1962 [Studii Cerc. Biol. (Biol. Anim.) **14**: 208] – FOISSNER (1984) Stapfia **12**: 71. **OT**: Soil of a mesoxerophytic grassland (Mesobrometum); Althan near Bierbaum, Lower Austria (48°19'N, 16°0'E). **NP? (sd)**: 1984/52. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype".

anguillula Dileptus FOISSNER, 1984 [Stapfia **12**: 94; unspecific symphory] – FOISSNER, AGATHA & BERGER (2002), Denisia **5**: 367. **OT**: Floodplain soil; rain forest of an island in the Amazon River, Brazil (about 4°S, 60°W). 5 **NP (od)**: 2002/781, 2002/782, 2002/783, 2002/784, 2002/785 (slides labelled as *D. anguilla*, listed in their table on page 38 as *D. anguillula*, but described including an improved diagnosis as *D. breviproboscis*).

angusta angusta Frontonia KAHL, 1931 [Tierwelt Dtl. **21**: 320] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 505. **OT**: Ephemerical meadow puddle; surroundings of Salzburg, Austria (about 47°N, 13°E). 3 **NP (od)**: 2002/628, 2002/629, 2002/630 (all wet silver nitrate method). **Remarks**: Protonym binomial, currently subspecies rank.

angusta obovata Frontonia FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 511. **OT**: Slightly saline soil from *Moringa ovalifolia* (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). **HP (od)**: 2002/201; 4 **PP**: 2002/202, 2002/203, 2002/204, 2002/205 (all wet silver nitrate method).

angustistoma Pseudomonilicaryon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 381. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/364; 2 **PP**: 2002/362, 2002/363.

annulata Amphisiella (KAHL, 1928) BORROR, 1972 – BERGER (2004) Acta Protozool. **43**: 2, 13. **OT**: Sandy beach; ahead the campground Pra' delle Torri near village Duna Verde, northern Adriatic Sea, Italy (45°34'n, 12°49'E). 5 **NP? (od)**: 2003/146, 2003/147, 2003/148, 2003/149, 2003/150. **Remarks**: Protonym: *Holosticha a.* KAHL, 1928 – Arch. Hydrobiol. **19**: 212. BERGER (2004: 13) mentiones "the slide containing the neotype specimen and four slides containing some further specimens (including those depicted in the present paper [viz. ontogenesis]) of the neotype population"; however, five slides labelled as "neotypes".

anomalocardiae Myxophthirus SILVA NETO, 1992 – Europ. J. Protistol. **28**: 421. **TH**: Mantle cavity of the bivalve *Anomalocardia brasiliana* GMELIN, 1791. **OT**: Magrove; village near Rio de Janeiro, Brazil (22°54'S, 43°14'W). **HP (sd)**: 1998/94 (Fig. 28). **Remarks**: "Typification" not mentioned in the original paper, but slide designated, apart from an arrow further marks may indicate "paratypes" (Fig. 28). Nucleospecies (Tab. 6).

anser Dileptus (MÜLLER, 1773) DUJARDIN, 1841 – WIRNSBERGER, FOISSNER & ADAM (1984) Arch. Protistenk. **128**: 314. **OT**: Edge of a pasture pool; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). 2 **NP (od)**: 1986/14; 1986/15 (wet silver nitrate method). **Remarks**: Protonym: *Vibrio anser* MÜLLER, 1773 – Vermium Terrestrium et Fluviatilium: 47. Nucleospecies of *Dileptus* DUJARDIN, 1841 (Tab. 6).

antarctica Maryna FOISSNER, 1993 – Protozoenfauna **4/1**: 354. **OT**: Mosses; Nunatak in Robertskollen, Western Dronning Maud Land, Antarctica (71°28'S, 3°15'W). 2 **SP (sd)**: 1997/66 (dry silver nitrate method); 1997/68; 2 **PP**: 1997/67 (dry silver nitrate method), 1997/69. **Remarks**: "Typification" not mentioned in the original paper; but two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

antarctica Notohymena FOISSNER, 1996 – Acta Protozool. **35**: 109. **OT**: *Deschampsia antarctica* grass sward; Signy Island, South Orkney Islands, Antarctica (60°40'S, 45°40'W). **HP** (unspecific **od** on page 97): 1997/48; **PP**: 1997/49.

antarctica Thigmokeronopsis PETZ, 1995 – Europ. J. Protistol. **31**: 138. **OT**: Sea ice; Weddel Sea, Antarctica (70°17'S, 8°53'W). **HP (od)**: 2001/140; **PP**: 2001/152.

antarctica Tontonia PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 130. **OT**: Pelagial; Weddell Sea, Antarctica (69°46'S, 9°0'W). **SP? (od)**: 2001/136; **PP**: 2001/77. **Remarks**: Slide bears the general note "Typ" (type) and one mark, but since further species are included, the status remains to be clarified.

antarctica Urosomoida FOISSNER, 1996 – Acta Protozool. **35**: 115. **OT**: Soil; Garwood Valley, South Victoria Land, Antarctica (about 78°S, 160°E). **HP** (unspecific **od** on page 97): 1997/51; **PP**: 1997/52.

antarcticum Kentrophyllum PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 50. **OT**: Multiyear sea ice; Weddell Sea, Antarctica (70°17'S, 8°53'W). **SP? (od)**: 2001/137. **Remarks**: Slide bears the general note "Typ" (type) and one big circle, but since further species are included, the status remains to be clarified. Nucleospecies (Tab. 6).

antarcticum Strombidium (BUSCH, 1930) KAHL, 1932 – PETZ, SONG & WILBERT (1995) Stapfia **40**: 110. **OT**: Endopagial of newly formed and multiyear sea ice; Weddell Sea, Antarctica (69°07'–70°31'S, 06°18'–12°08'W). **NP (od** without number): 2001/28. **Remarks**: Protonym: *Buehringa antarcticum* BUSCH, 1930 – Abh. Ber. Mus. Magdeburg **6**.

antarcticus Litonotus SONG & WILBERT 2002 – Acta Protozool. **41**: 24. **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **HP** (unspecific **od** on page 24): 2001/9; **PP**: 2001/139.

antarcticus Placus PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 18. **OT**: Pancake sea ice; Weddell Sea, Antarctica (69°46'S, 11°0'W). **PP** (**od**): 2001/147. **Remarks**: Announced "holotype" not labelled, thus missing.

anulatus Enchelyodon FOISSNER, 1984 – Stapfia **12**: 56. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher, urban area of Salzburg, Austria (47°48'N, 13°02'E). **2 SP** (unspecific **od** on page 8): 1984/42, 1984/43. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

apiculatum Trachelophyllum (PERTY, 1852) CLAPARÈDE & LACHMANN, 1859 – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 145. **OT**: Soil of a small salt pan; Morrocoy National Park, north coast of Venezuela (about 11°N, 68°W). 2 **NP** (**od**): 2002/764, 2002/765. **Remarks**: Two further earlier slides (inv. no. 1984/31, 32), although mislabelled as "paratypes", likely refer to the publication without explicit neotypification of FOISSNER (1984, Stapfia **12**: 50). Protonym: *Trachelius apiculatus* PERTY, 1852 – Kenntn. klein. Lebensformen: 151. Nucleospecies of *Trachelophyllum* CLAPARÈDE & LACHMANN, 1859 (Tab. 6), which is the nucleogenus of Trachelophyllidae KENT, 1882 (Tab. 7).

arboricola Opercularia (BIEGEL, 1954) FOISSNER, 1981 – Protistologica **17**: 34 (incorrectly as *O. arboricolum*). **OT**: Soil of a grass heath; Guttal, Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°10'N, 12°49'E). **NP?** (**sd**): 1981/65. **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". Locality according to the redescription on page 18. Protonym: *Pyxidium arboricolum* BIEGEL, 1954 – Trudy zool. Inst., Leningr. **129**: 163. Currently junior subjective synonym of *O. curvicaulis* (PENARD, 1922) according to FOISSNER (1998, Europ. J. Protistol. **34**: 206; as *O. curvicaule*); however, the genus has femine gender (cp. AESCHT 2001).

arcachonense Parduczia (NOUZAREDE, 1965) DRAGESCO, 1999 – Stapfia **66**: 74. **OT**: Marine sand; Thau lagoon, Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 4 **NP** (unspecific **od** on page 7): 1999/169, 1999/170, 1999/171, 1999/172. **Remarks**: Protonym: *Geleia a.* NOUZAREDE, 1965 – Exc. Medica Int. Congr. Ser. **91**: 248. Since the genus has femine gender the species name has to be corrected to *P. arcachonensis* (cp. AESCHT 2001: 293). Misspelled *Parduzia a.* by AESCHT (2003: 380).

arcuata Microdiaphanosoma (GRANDORI & GRANDORI, 1934) WENZEL, 1953 – FOISSNER (1981) Protistologica **17**: 30. **OT**: Exact soil site unknown; Glockner area, Hohe Tauern, Salzburg, Austria. 2 **NP?** (**sd**): 1981/33 (dry silver nitrate method); 1981/34 (silver carbonate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes". Collected in 1977 and 1979, respectively. Protonym: *Diaphanosoma a.* GRANDORI & GRANDORI, 1934 – Boll. Lab. Zool. agr. Bachic. R. Ist. sup. agr. Milano **5**: 253. Nucleospecies of *Microdiaphanosoma* WENZEL, 1953 (Tab. 6). Since this genus has neuter gender, the species name was corrected to *M. arcuatum* (cp. FOISSNER 1993 – Protozoenfauna **4/1**: 714).

arenicola Circinella FOISSNER, 1994 – Europ. J. Protistol. **30**: 156. **OT**: Sand; Coral Pink Sand Dunes near the Zion National Park, Utah, USA (about 37°N, 113°W). **HP** (**od**): 1997/23 (mislabelled as "genotype"); 4 **PP**: 1997/24, 1997/25, 1997/26, 1997/27. **Remarks**: More "paratypes" than indicated were deposited including ontogenesis. Nucleospecies (Tab. 6).

arenicola Diplites FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 193. **OT**: Dune soil (sand); escarpment of central Namib Desert, about 20 km north of the village of Solitaire, Namibia (23°50'S, 16°0'E). **HP** (**od**): 2002/259; **PP**: 2002/258 (Fig. 35).

arenicola Erimophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 796. **OT**: Sand with litter from *Nara* scrubs; Southern Namib Desert, centre of Sossus Vlei, Namibia (24°50'S, 15°20'E). **HP** (**od**): 2002/243; 2 **PP**: 2002/244, 2002/245.

arenicola Prorodon (KAHL, 1933) DRAGESCO, 2002 – Linzer biol. Beitr. **34**: 1565. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/801, 2002/802. **Remarks**: Protonym: *Pseudoprorodon a.* KAHL, 1933 – Tierwelt Dtl. **30**: 50. "FOISSNER, 1987" is incorrectly cited as combining author.

"*arenicola Protospathidium*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 110. **OT**: Forest soil; surroundings of Alice Springs, that is, a hill beside the road to the Ayers Rock, Australia (about 24°S, 133°E). **HP** (**od**): 2007/125. 4 **PP**: 2007/125 (3 specimens figured), 2007/126, 2007/127, 2007/128. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

arenicola Swedmarkia DRAGESCO, 1954 – Bull. Soc. zool. Fr. **79**: 69. **OT**: Unknown. **SP?** (**sd**): 2002/926. **Remarks**: "Typification" not mentioned in the original paper, where "Roscoff, France (Aber) qu'a Banyuls" is given as type location. According to the label the slide is from 1953 and Arcachon, France (44°39'N, 1°10'W); two marks. Nucleospecies and subsequently nucleogenus of Swedmarkiidae JANKOWSKI, 1979 (Tab. 6, 7).

arenicola Vermioxytricha FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 751. **OT**: Humous sand under *Acacia erioloba*; Southern Namib Desert, centre of Sossus Vlei, Namibia (24°50'S, 15°20'E). **HP** (**od**): 2002/234 (Fig. 32); 5 **PP**: 2002/235, 2002/236, 2002/237, 2002/238, 2002/239. **Remarks**: Last four slides labelled as vouchers, but designated as "paratypes" according to their table 1 on page 43; all slides include ontogenetic specimens (e.g. Fig. 32). Nucleospecies (Tab. 6).

arenicolus Sathrophilus DRAGESCO, 2002 – Linzer biol. Beitr. **34**: 1575. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). **HP** (unspecific **od** – incorrectly as "neotypes" – on page 1547): 2002/803; **PP**: 2002/804.

armata Apertospathula FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 322. **OT**: Loamy wheat field soil; about 10 km south of Nazareth, Israel (32°30'N, 35°0'E). **HP** (**od**): 2002/599; 2 **PP**: 2002/600, 2002/601.

armatides Enchelyodon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 130. **OT**: Litter from *Combretum imberbe* (leadwood tree); at foot of the Brandberg, an inselberg, east margin of the central Namib Desert, Namibia (21°S, 14°35'E). **HP (od)**: 2002/226; 2 **PP**: 2002/227, 2002/228.

armatides Prorodon FOISSNER, 1997 – Limnologica (Berlin) **27**: 206. **OT**: Zinnbach stream in Bavaria, Fichtelgebirge, Germany (50°19'N, 12°13'E). 3 **NP? (od)**: 1998/66, 1998/67; 1998/68 (wet silver nitrate method). **Remarks**: Neotypified, because it is a replacement name for *Pseudoprorodon armatus* KAHL, 1930, which is a secondary homonym. However, according to Art. 72.7 (ICZN 1999) these taxa have the same name-bearing type suggesting that the deposited slides are symphoronts.

armatum Semispathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 331. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/362; 2 **PP**: 2002/340, 2002/341. **Remarks**: Two further slides (inv. no. 2002/184, 191) labelled as "paratype", represent vouchers according to table 1 in their paper.

armatum Supraspathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 280. **OT**: Highly saline soil; Etosha National Park, road to the Halali rest camp, Namibia (18°55'S, 16°25'E). **HP (od)**: 2002/29; **PP**: 2002/30.

armatus Dileptus FOISSNER & SCHADE in FOISSNER, 2000 – Europ. J. Protistol. **36**: 265. **OT**: Soil; Helgoland ("Oberland"), Germany (54°12'N, 7°53'E). **HP (od)**: 2000/114 (Fig. 33); 3 **PP**: 2000/115, 2000/116, 2000/117. **Remarks**: Unmentioned "paratypes" are also included in the first slide (Fig. 33).

armatus Phialinides FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 224. **OT**: Rain forest soil from a small island; Amazon River, about 20 km east of the town of Manaus, Janauari region, Brazil (about 4°S, 60°W). **HP (od)**: 2002/786; 4 **PP**: 2002/781, 2002/782, 2002/783, 2002/784.

ascendens Epispathidium (WENZEL, 1955) FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 231. **OT**: Soil of a conventionally farmed field near Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). **NP? (sd)**: 1988/104. **Remarks**: Neotypification not mentioned in paper, but slide designated. Protonym: *Spathidium ascendens* WENZEL, 1955 – Arch. Protistenk. **100**: 518.

aspera Colpoda KAHL, 1926 [Arch. Protistenk. **55**: 322] – FOISSNER (1980) Zool. Jb. Syst. **107**: 415. **OT**: Soil; Glockner area, Austria. 2 **NP? (sd)**: 1981/29 (dry silver nitrate method); 1981/30 (silver carbonate method; Fig. 5). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes" (e.g. Fig. 5). No precise site given, neither in the original paper nor the given reference. FOISSNER (1993, Protozoenfauna **4/1**: 99) noted the original locality "Water-lily pond in rotting *Glyceria* stalks; Hamburg, City Park, Germany (53°N, 10°E)" and the Glockner area.

aspoecki Cyrtohymena (Cyrtohymenides) FOISSNER, 2004 – Denisia **13**: 372. **OT**: Floodplain soil; Enns River near the mouth to the Danube River, Upper Austria (48°14'N, 14°30'E). **HP (od)**: 2007/594; **PP**: 2007/595, 2007/596, 2007/597, 2007/598. **Remarks**: Nucleospecies of the subgenus (Tab. 6).

astyliformis Vorticella FOISSNER, 1981 – Protistologica **17**: 37. **OT**: Soil; Hochtor at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°04'N, 12°50'E). **HP (sd)**: 1981/67. **Remarks**: "Typification" not mentioned in the original paper, but slide designated.

attenuatum Trachelophyllum FOISSNER, 1983 [Annln naturh. Mus. Wien **84B**: 70; aphory] – FOISSNER (1984) Stapfia **12**: 50. **OT**: Pasture pool; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **NP? (sd)**: 1984/33. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated. Currently *Epitholiolus attenuatus* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 164).

atypicus Bryometopus FOISSNER, 1980 [Ber. Nat.-Med. Ver. Salzburg **5**: 83; aphory] – FOISSNER (1984) Stapfia **12**: 101. **OT**: Soil of an alternatively farmed grassland; urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP? (sd)**: 1984/77, 1984/78. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes".

augustini Colpoda FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 249. **OT**: Soil of an *Eucalyptus* forest; south of Tel Aviv, Israel (32°4'N, 34°46'E). 2 **SP** (unspecific **od** on page 190): 1988/72; 1988/73 (dry silver nitrate method); **PP**: 1988/74. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Currently *Exocolpoda a.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 921f.; nucleospecies of the latter genus and subsequently nucleogenus of Exocolpodidae (Tab. 6, 7).

auripunctata Oxytricha BLATTERER & FOISSNER, 1988 – Stapfia **17**: 61. **OT**: Mosses of a natural pine forest (*Callitris* sp.); near Tailem Bend, Adelaide; Australia (35°16'S, 139°27'E). **HP** (unspecific **od** on page 4): 1989/74; 2 **PP**: 1989/75, 1989/76.

australe Arcuospathidium FOISSNER, 1988 – Stapfia **17**: 99. **OT**: Soil of an *Eucalyptus* forest; Belair National Park near Adelaide, Australia (35°0'S, 138°38'E). **SP** (unspecific **od** on page 88): 1989/37 (four marks, Fig. 21); **PP**: 1989/38. **Remarks**: Currently considered as junior subjective synonym of *Cultellothrix atypica* (WENZEL, 1953) FOISSNER & XU, 2007 (Monogr. Biologicae **81**: 29).

australe Loxophyllum FOISSNER & O'DONOGHUE, 1990 – Invertebr. Taxon. **3**: 674. **OT**: Standing waters and ponds; metropolitan area of Perth, West Australia (31°57'S, 115°58'E). 2 **PP** (unspecific **od** on page 662): 1988/177, 1988/178 (labelled as *L. australis*). **Remarks**: Precise details of the collection sites were not recorded. A single "holotype" slide is deposited in AMS. Currently *Siroloxophyllum a.* according to FOISSNER & LEIPE (1995, J. Eukaryot. Microbiol. **42**: 485).

australiense Pedohymena FOISSNER, 1995 – Arch. Protistenk. **145**: 59. **OT**: Coastal soil; Darwin, Northern Territory, Australia (12°28'S, 130°50'E). 3 **SP (od)**: 1997/74; 1997/70 (wet silver nitrate method); 1997/73 (dry silver nitrate method); 2 **PP**: 1997/71; 1997/72 (wet silver nitrate method; all labelled as "genotype" and *P. australis*). **Remarks**: Three slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6);

gender ending corrected to *P. australiensis* by FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 466).

australiense Spetazoon FOISSNER, 1994 – Kataloge des OÖ. Landesmuseums N. F. **71**: 267. **OT**: Soil of a reservoir; Fogg Dam near Darwin, Northern Territory, Australia (12°28'S, 130°50'E). **HP** (**od**): 1994/83; **PP**: 1994/84. **Remarks**: Nucleospecies (Tab. 6).

australiensis Bilamellophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 170. **OT**: Floodplain soil; Murray River near the town of Albury at the landside of Ryans road, Australia (37°0'S, 147°0'E). **HP** (**od**): 2002/708; 2 **PP**: 2002/705, 2002/709. **Remarks**: Nucleospecies (Tab. 6).

australiensis Clavoplites FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 217. **OT**: Red, sandy soil under shrubs; between the village of Erldunda and the Ayers Rock, Australia (26°S, 132°30'E). **HP** (**od**): 2002/716; 5 **PP**: 2002/717, 2002/718, 2002/719, 2002/722, 2002/723.

australis Amphisiella BLATTERER & FOISSNER, 1988 – Stapfia **17**: 36. **OT**: Soil of a secondary pine forest; near South Para Reservoirs, sourroundings of Adelaide, Australia (34°56'S, 138°36'E). **HP** (unspecific **od** on page 4): 1989/56; **PP**: 1989/57.

australis Australothrix BLATTERER & FOISSNER, 1988 – Stapfia **17**: 39. **OT**: Bark of a rain forest tree (probably *Eucalyptus* sp.); near Cairns, Queensland, Australia (16°55'S, 145°46'E). **HP** (unspecific **od** on page 4): 1989/59; **PP**: 1989/60. **Remarks**: Nucleospecies (Tab. 6).

australis Bresslauides BLATTERER & FOISSNER, 1988 – Stapfia **17**: 21. **OT**: Bark overgrown with lichens and mosses of a secondary pine forest near Innisfail; Chairns, Australia (17°32'S, 146°2'E). **HP** (unspecific **od** on page 4): 1989/46; 2 **PP**: 1989/47, 1989/48 (all wet silver nitrate method). **Remarks**: Nucleospecies (Tab. 6).

australis Cladotricha BLATTERER & FOISSNER, 1988 – Stapfia **17**: 32. **OT**: Soil of strongly haline grass heath; shore of Lake Alexandrina (Point Pelican) near Adelaide, Australia (34°47'S, 138°29'E). **HP** (unspecific **od** on page 4): 1989/53; **PP**: 1989/54.

australis Cyrtohymena FOISSNER, 1995 – Arch. Protistenk. **145**: 70. **OT**: Soil; Amazonian rain forest near the town of Iquitos, Peru (3°46'S, 73°15'W). **HP** (**od**): 1997/87; **PP**: 1997/88. **Remarks**: Currently *C. (Cyrtohymenides) a.* according to FOISSNER (2004, Denisia **13**: 371).

australis Holosticha BLATTERER & FOISSNER, 1988 – Stapfia **17**: 45. **OT**: Coniferous litter of a secondary pine forest; margin of Adelaide, Australia (34°56'S, 138°36'E). **HP** (unspecific **od** on page 4): 1989/65; **PP**: 1989/66. **Remarks**: Currently *Anteholosticha a.* according to BERGER (2003, Europ. J. Protistol. **39**: 377).

australis Lacrymaria FOISSNER & O'DONOGHUE, 1990 – Invertebr. Taxon. **3**: 669. **OT**: Small pond in metropolitan Perth, West Australia (31°57'S, 115°58'E). **PP** (**od**): 1988/183. **Remarks**: "Typification" only generally mentioned on page 662. A single "holotype" slide is deposited in AMS.

australis Microthorax FOISSNER & O'DONOGHUE, 1990 – Invertebr. Taxon. **3**: 680. **OT**: Small pond in metropolitan Perth, West Australia (31°57'S, 115°58'E). **PP** (**od**): 1988/182. **Remarks**: "Typification" only generally mentioned on page 662. A single "holotype" slide is deposited in AMS.

australis Naxella FOISSNER & O'DONOGHUE, 1990 – Invertebr. Taxon. **3**: 678. **OT**: Small farm dam; adjacent to Whispering Road, 1 km east of Barossa Reservoir, Williamstown, South Australia (34°39'S, 138°51'E). 3 **PP** (unspecific **od** on page 662): 1988/194; 1988/193 (wet silver nitrate method); 1988/195 (dry silver nitrate method). **Remarks**: A single "holotype" slide is deposited in AMS.

australis Oxytricha FOISSNER & O'DONOGHUE, 1990 – Invertebr. Taxon. **3**: 689. **OT**: Small pond in metropolitan Perth, West Australia (31°57'S, 115°58'E). 2 **PP** (unspecific **od** on page 662): 1988/186, 1988/187. **Remarks**: A single "holotype" slide is deposited in AMS. Currently *Notohymena a.* according to BLATTERER & FOISSNER (1988, Stapfia **17**: 70).

australis Phialinides FOISSNER, 1988 – Stapfia **17**: 98. **OT**: Soil of a grassland; Mzima Springs, Tsavo National Park West, Kenya (2°59'S, 38°1'E). **HP** (unspecific **od** on page 88): 1989/33; **PP**: 1989/34. **Remarks**: Nucleospecies (Tab. 6).

australis Pleuroplites FOISSNER, 1988 – Stapfia **17**: 89. **OT**: Gum tree (*Ficus* sp.) litter; Nairobi Arboretum, Kenya (2°20'S, 36°50'E). **HP** (unspecific **od** on page 88): 1989/29; **PP**: 1989/30. **Remarks**: Nucleospecies (Tab. 6) and subsequently nucleogenus of Pleuroplitidae FOISSNER, 1996 (Tab. 7).

australis Rostrophryides BLATTERER & FOISSNER, 1988 – Stapfia **17**: 23. **OT**: Soil of of a sand hill; 99 Mile Dessert, north of Lake Alexandrina near Adelaide, Australia (about 35°S, 139°E). **HP** (unspecific **od** on page 4): 1989/49; **PP**: 1989/77.

australis Trochiliopsis FOISSNER, SKOGSTAD & PRATT, 1988 – J. Protozool. **35**: 489. **OT**: Activated sludge, Glenelg wast water treatment plant, Glenelg, South Australia (34°59'S, 138°31'E). 2 **SP** (**od**): 1988/171 (dry silver nitrate method), 1988/172; 3 **PP**: 1988/173 (dry silver nitrate method); 1988/174, 1988/175. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

auxiliaris Krassniggia FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 261. **OT**: Soil of a coastal rain forest; Shimba Hills near Mombasa, Kenya (4°13'S, 39°25'W). 3 **SP** (unspecific **od** on page 190): 1988/83, 1988/85, 1988/84 (all wet silver nitrate method) . **Remarks**: Three slides are labelled as "holotype" and "genotypes" violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6).

B

bacilliformis Kahliella (GELEI, 1954) CORLISS, 1960 – BERGER & FOISSNER (1987) Zool. Jb. Syst. **114**: 197. **OT**: Loamy soil of a wheat field near Kibbitz, about 10 km south of Nazaret, Israel (32°30'N, 35°0'E). 6 **NP** (unspecific **od** on page 195): 1986/51, 1986/52, 1986/53, 1986/54, 1986/55, 1986/56. **Remarks**: Protonym: *Kahlia b.* GELEI, 1954 – Acta biol. hung. **5**: 316. Currently *Deviata b.* according to EIGNER (1995, Europ. J. Protistol. **31**: 358).

balbianii breviproboscis Monodinium FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Lan-

desamtes für Wasserwirtschaft **3/99**: 190. **OT**: Pelagial of the pond; University of Salzburg, Austria (47°48'N, 13°40'E). **HP (od)**: 1999/95; **PP**: 1999/96.

balbianii Monodinium FABRE-DOMERGUE, 1888 [Annls Sci. nat. (sér. 7, Zool.) **5**: 35.] – FOISSNER (1979) Int. Revue ges. Hydrobiol. **64**: 122. **OT**: Neuston of alpine pools; Hexenküche, Glockner, Salzburg, Austria (47°7'N, 12°49'E). **NP? (sd)**: 1981/8 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". Currently subspecies rank according to FOISSNER, BERGER & SCHAUMBURG (1999, Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 182).

balteatus Euplotes (DUJARDIN, 1841) DIESING, 1850? – SONG & WILBERT (2002) Acta Protozool. **41**: 55. **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **NP? (sd)**: 2001/5. **Remarks**: Neotypification not mentioned, but "new type" according to slide and an external sheet of paper. Protonym: *Ploesconia balteata* DUJARDIN, 1841 – Hist. nat. zoophytes: 437.

bamforthi Apoenchelys FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 112. **OT**: Mud and soil from granitic rockpools; escarpment of the central Namib Desert, Spitzkoppe area about 120 km north of the town of Swakopmund, Namibia (21°45'S, 15°8'E). **HP (od)**: 2002/478; 9 **PP**: 2002/481, 2002/482, 2002/483, 2002/484, 2002/485, 2002/486, 2002/487, 2002/488, 2002/489. **Remarks**: Nucleospecies (Tab. 6).

beninensis Gruberia DRAGESCO & DRAGESCO-KERNÉIS, 1986 – Faune tropicale **26**: 199. **OT**: Brackish water; Cotonou, Benin (6°15'N, 2°20'E). 3 **SP? (sd)**: 2002/841 (wet silver nitrate method); 2002/842; 2006/39 (Feulgen staining from 1977). **Remarks**: "Typification" not mentioned in the original paper, but slides labelled as "n[ov]. sp. 1986"; because of different preparation methods symphoronts.

bergeri Holosticha FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 197. **OT**: Mosses; village Sandkäs, Isle Bornholm, Baltic Sea, Denmark (55°10'N, 15°0'E). **HP** (unspecific **od** on page 190): 1988/138; 2 **PP**: 1988/139, 1988/140. **Remarks**: Currently *Anteholosticha b.* according to BERGER (2003, Europ. J. Protistol. **39**: 377).

bergeri Laurentiella DRAGESCO, 2003 – Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**: 38. **OT**: Sand; margin of Lake Tanganyika Bujumbura, Burundi (3°37'S, 29°35'E). 2 **SP** (unspecific **od** – incorrectly as "neotypes" – on page 7): 2003/78, 2003/133.

bifurcata Halteria TAMAR, 1968 [Acta Protozool. **6**: 176] – KRAINER (1995) Lauterbornia **21**: 52. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). 2 **NP** (unspecific **od** on page 40): 1992/14, 1992/15.

bimicronucleatum Blepharisma VILLENEUVE-BRACHON, 1940 [Archs Zool. exp. gén. **82**: 48] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 228. **OT**: Soil of a conventionally farmed meadow; Schaming, Eugendorf near Salzburg, Austria (47°52'N, 13°7'E). 2 **NP (od)**: 1988/48, 1988/49 (labelled as *B. bimicronucleata*).

binucleata Enchelyotricha FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 224. **OT**: Soil of a meadow near Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). **HP (od)**: 1988/105 (incorrectly labelled as "genotype"); 2 **PP**: 1988/106, 1988/107. **Remarks**: Only one "paratype" indicated, but two labelled. Nucleospecies (Tab. 6).

binucleata multicirrata Amphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 663. **OT**: Soil from *Aloe dichotoma* forest; Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°30'S, 18°25'E). **HP (od)**: 2002/419; 3 **PP**: 2002/420, 2002/423, 2002/424.

binucleata Parakahliella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 607. **OT**: Soil; Etosha National Park, Aus water-hole, Namibia (19°10'S, 16°10'E). 2 **SP (od)**: 2002/117, 2002/118; 2 **PP**: 2002/119, 2002/120. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

binucleata Platyophrya FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 238. **OT**: Haline soil of the Negev desert near the Dead Sea, Israel (30°30'N, 34°55'E). **HP** (unspecific **od** on page 190): 1988/51; **PP**: 1988/52.

binucleatum Paragonostomum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 826. **OT**: Lawn (artificial?) soil; hotel in the village of Sharm el Sheik, Sinai, Egypt (about 27°N, 34°E). **HP (od)**: 2002/602; 4 **PP**: 2002/603, 2002/604, 2002/605, 2002/606.

binucleatus Pseudocohnilembus FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 530. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/87; **PP**: 2002/88.

binucleatus Trachelolophos DRAGESCO, 1999 – Annls Sci. nat. **1**: 2. **OT**: Marine sand; Thau lagoon and Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 5 **SP (od)**: 1998/20, 1998/21, 2002/853 (Fig. 19), 2002/854, 2002/860. **Remarks**: The first two slides are indicated as "holo- and paratype" in the paper. However, the three slides with a total of 7 marks deposited later are labelled as "n. sp." and refer to "Dg. 1999" (e.g. Fig. 19), thus they are also included in the type series. They are considered as symphoronts because different years (1994-1996) and sites of collection are given.

bitricha Plagiocampa FOISSNER, 1999 – Biodiversity and Conservation **8**: 336. **OT**: Soil near beach of Candelaria; Canary Islands, Tenerife, Spain (28°21'N, 16°22'W). **HP (od)**: 2002/687; 2 **PP**: 1999/12, 2002/688. **Remarks**: The "holotype" was already announced in 1999, but not deposited, in contrast to a "paratype" (inv. no. 1999/12 including four marks). FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 41) deposited the holophoront and one further "paratype".

bivacuolata Podophrya FOISSNER, 2004 – Denisia **13**: 378. **OT**: Floodplain soil; Enns River near the mouth to the Danube River, Upper Austria (48°14'N, 14°30'E). **HP (od)**: 2007/600; **PP**: 2007/599.

blattereri Enchelydium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 121. **OT**: Soil; Murray River floodplain near Albury at the landside of Ryans road, Australia (37°S, 147°E). **HP (od)**: 2002/705; 3 **PP**: 2002/706, 2002/707, 2002/708.

blochmanni Furgasonia (FAURÉ-FREMIET, 1967) JANKOWSKI, 1964 – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. **196**: 210. **OT**: Pasture pool; Koppler Moor near Salzburg, Austria (47°48'N, 13°10'E). 2 **NP** (**od**): 1988/27; 1988/28 (wet silver nitrate method). **Remarks**: Protonym: *Cyclogramma b.* FAURÉ-FREMIET, 1967 – J. Protozool. **14**.

bodiani Trachelocerca (DRAGESCO, 1963) DRAGESCO 2002 – Linzer biol. Beitr. **34/2**: 1549. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/805, 2002/806. **Remarks**: Protonym: *Tracheloraphis b.* DRAGESCO, 1963 – Cah. Biol. mar. **4**: 97.

brachyarmata Paraenchelys FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 106. **OT**: Savannah soil; near the village of El Sapo, about 50 km north of Puerto Ayacucho, Venezuela (about 7°N, 67°W). **HP** (**od**): 2002/766; 3 **PP**: 2002/767, 2002/768, 2002/769.

"*brachycaryon Edaphospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 85. **OT**: Soil of reed-mace swamp; bank of the Kanab Creek near the town of Kanab, Utah, USA (37°N, 112°30'W). **HP** (**od**): 2007/116. 5 **PP**: 2007/116, 2007/117, 2007/118, 2007/119, 2007/120. **Remarks**: Nucleospecies (Tab. 6). Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

brachykinetum Rimostrombidium KRAINER, 1995 – Lauterbornia **21**: 62. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). **HP** (unspecific **od** on page 40): 1992/30; **PP**: 1992/31. **Remarks**: Incorrectly labelled as "*Strobilidium hexakinetum*", as in the unpublished thesis (cp. FOISSNER, BERGER & SCHAUMBURG, 1999 Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 606).

brachyoplites Paraenchelys FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 109. **OT**: Soil; escarpment of the central Namib Desert, surroundings of the Ameib Guest Farm, about 120 km northeast of the town of Swakopmund, Namibia (21°50'S, 15°35'E). **HP** (**od**): 2002/409; 3 **PP**: 2002/410, 2002/411, 2002/412.

brachypoda mucosa Brachyosoma FOISSNER, 1999 – Biodiversity and Conservation **8**: 360. **OT**: Soil from Hortobágy Puzta near the town of Debrecen, Hungary (47°32'N, 21°38'E). **HP** (**od**): 1999/27; 4 **PP**: 1999/28, 2007/601, 2007/602 (figured).

brachysticha Holosticha FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 579. **OT**: Sandy, saline coastal soil (pH 7.6) near Punta Pirikiki, about 54 km south of Limon; Caribbean coast of Costa Rica (9°40'N, 82°40'W). **HP** (**od**): 2002/754; 2 **PP**: 2002/755, 2002/756. **Remarks**: Currently *Anteholosticha b.* according to BERGER (2003, Europ. J. Protistol. **39**: 377).

brachytona Eschaneustyla STOKES, 1886 [Proc. Am. phil. Soc. **23**: 28] – EIGNER (1994) Europ. J. Protistol. **30**: 462. **OT**: Disused coconut doormat, which has been lying for several years on a lawn; village of Schrötten near Deutsch Goritz, Styria, Austria (46°47'N, 15°49'E). 2 **NP** (**od**): 1993/14, 1993/15 (originally labelled as "*Calvobakuella terricola*"). **Remarks**: Nucleospecies (Tab. 6).

bradburyarum Colpodidium (*Pseudocolpodidium*) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 489. **OT**: Soil from bottom of river overflow in Beijing, China (39°56'N, 116°24'E). **HP** (**od**): 2002/677; 2 **PP**: 2002/678, 2002/679 (wet silver nitrate method). **Remarks**: Nucleospecies of the subgenus (Tab. 6).

brasiliensis Cephalospatula FOISSNER, 2003 – Acta Protozool. **42**: 128. **OT**: Floodplain soil; Parana River, near the town of Maringá, Brazil (22°40'S, 53°15'W). **HP** (**od**): 2007/76. 5 **PP**: 2007/72, 2007/73, 2007/75, 2007/76, 2007/77. **Remarks**: Nucleospecies (Tab. 6).

breviproboscis Dileptus FOISSNER, 1981 – Zool. Jb. Syst. **108**: 281. **OT**: Soil of an alpine pasture; Hochmais at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°7'N, 12°48'E). **HP** (**sd**): 1981/7. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Considered as junior subjective synonym of *D. anguillula* by FOISSNER (1984, Stapfia **12**: 94), a neotypified species (see above).

breviseries Orthoamphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 703. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP** (**od**): 2002/114; 2 **PP**: 2002/115, 2002/116.

buitkampi Paraurostyla FOISSNER, 1982 – Arch. Protistenk. **126**: 40. **OT**: Soil of the margin of a ski slope; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **HP** (**sd**): 1981/82. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Pseudouroleptus b.* according to BERGER & FOISSNER (1987, Zool. Jb. Syst. **114**: 197).

bulli Arcuospathidium FOISSNER, 2000 – Biol. Fertil. Soils **30**: 473. **OT**: Savannah soil; near the village of Gabiro, Virunga National Park, Rwanda (about 2°S, 30°E). **HP** (**od**): 2000/128; 6 **PP**: 2000/129, 2000/130, 2000/131, 2000/132, 2000/133, 2000/134.

burkli Alinostoma BLATTERER & FOISSNER, 1990 – Arch. Protistenk. **138**: 101. **OT**: Windach stream; near the sewage plant of the village of Eching, Bavaria, Germany (48°5'N, 11°7'E). **HP** (**od**): 1993/33; **PP**: 1993/34. **Remarks**: Genus needs redefinition (cp. AESCHT 2001: 20).

bursaria Bursostoma VÖRÖSVARY, 1950 [Annls biol. Univ. szeged. **1**] – GANNER, FOISSNER & ADAM (1988) Annls Sci. nat. (Zool.) **9**: 3. **OT**: Flocks of *Sphaerotilus natans* (sewage fungus); river Salzach, town of Salzburg, Austria (47°48'N, 13°02'E). 6 **NP?** (**sd**): 1988/118, 1988/119, 1988/122, 1988/123; 1988/120 (wet silver nitrate method); 1988/121 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the latter paper, but slides designated. Nucleospecies (Tab. 6).

C

calkinsi Dysteria KAHL, 1931 – SONG & WILBERT (2002) Acta Protozool. **41**: 35 **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **NP?** (**sd**): 2001/8. **Remarks**: Neotypification not mentioned, but "new type" according to slide and an external sheet of paper. KAHL (1931, Tierwelt Dtl. **21**: 258) introduced this name for a misidentified *D. lanceolata* sensu CALKINS.

calyciformis Cymatocylis (LAACKMANN, 1907) LAACKMANN, 1910 – PETZ, SONG & WILBERT (1995) Stapfia **40**: 151. **OT**: Pelagial; Weddel Sea, Antarctica (68°38'S, 6°05'W). **NP** (**od** without number): 2001/124. **Remarks**: Protonym: *Cyttarocylis c*. LAACKMANN, 1907 – Deutsche Südpolarexpedition 1901-1903 **12**: 127.

campyla Dexiostoma (STOKES, 1886) JANKOWSKI, 1967 – GANNER & FOISSNER (1989) Hydrobiologia **182**: 201. **OT**: Macrophyte-based waste water treatment system; Ardenberg, Upper Austria (48°8'N, 12°58'E). 3 **NP** (**od** without number on page 182): 1989/5 (silver carbonate method); 1989/4, 1989/6 (wet silver nitrate method). **Remarks**: Location according to paper. Perhaps a "neotype" strain of MCCOY (1974) exists in liquid nitrogen (cp. GANNER & FOISSNER 1989: 182). Protonym: *Colpidium campylum* STOKES, 1886 – Ann. Mag. nat. Hist. **17**: 101. Nucleospecies of *Dexiostoma* JANKOWSKI, 1967 (Tab. 6); since this genus has neuter gender, the species name has to be *D. campylum*.

capari Anatoliocirrus ÖZBEK & FOISSNER in FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 617. **OT**: Highly saline soil; Mersin, Silifke, Göksu Delta, Cirba Region, Turkey (36°20'N, 33°59'E). **HP** (**od**): 2002/689; 12 **PP**: 2002/690, 2002/691, 2002/692, 2002/693, 2002/694, 2002/695, 2002/696, 2002/697, 2002/698, 2002/699, 2002/700, 2002/701 (according to their table 1 on p. 37). **Remarks**: "Paratypes" include ontogenesis. Nucleospecies (Tab. 6).

carchesii Papillorhabdos FOISSNER, 1984 – Stapfia **12**: 42. **OT**: *Carchesium* film of the right bank of river Traun; between Laakirchen and Steyrermühl, Upper Austria (47°59'N, 13°48'E). **HP** (unspecific **od** on page 8): 1984/27.

carnea Pseudokeronopsis (COHN, 1866) WIRNSBERGER, LARSEN & UHLIG, 1987 – Europ. J. Protistol. **23**: 79. **OT**: Marine; Little Belt, Denmark (52°02'N, 10°24'E). 2 **NP** (**od**): 1986/40, 1986/41. **Remarks**: Protonym, trinominal: *Oxytricha flava carnea* COHN, 1866 – Z. wiss. Zool. **16**: 288; currently raised to species rank.

castalia Urotricha MUNOZ, TELLEZ & FERNANDENZ-GALIANO, 1987 [Acta Protozool. **26**: 200] **–** FOISSNER & PFISTER (1997) Limnologica (Berlin) **27**: 336. **OT**: Plankton of an artificial pond; Salzburg University, Austria (47°48'N, 13°40'E). 8 **NP** (**od**): 1998/95, 1998/96, 1998/97, 1998/98; 1998/100, 1998/101, 1998/103, 1998/104 (wet silver nitrate method).

caudata Paramphisiella (HEMBERGER, 1985) FOISSNER, 1988 – EIGNER & FOISSNER (1994) J. Eukaryot. Microbiol. **41**: 247. **OT**: Grassland soil; Mt. Kenya near the lodge "The Arc", Mount Kenya National Park, Kenya (about 0°N, 37°E). **NP** (**od**): 1993/104 (one mark). **Remarks**: Neotypification not mentioned in paper, but two slides mentioned unspecifically, one slide designated, although mislabelled as "holotype". Six further marked slides with specimens in divisional morphogenesis. Due to earlier deposition other inventory numbers as stated in the paper, viz. "12, 13/1994". Protonym: *Uroleptoides c*. HEMBERGER, 1985 – Arch. Protistenk. **130**: 402.

caudata Pseudochilodonopsis (PERTY, 1852) BLATTERER & FOISSNER, 1990 **–** Arch. Protistenk. **138**: 100. **OT**: Windach stream; near the sewage plant of the village of Eching, Bavaria, Germany (48°5'N, 11°7'E). **NP** (**od**): 1993/38. **Remarks**: Protonym: *Loxodes cucullio caudatus* PERTY, 1852 – Kenntn. klein. Lebensformen: 152.

caudatum Paragonostomum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 820. **OT**: Soil from a meadow in the Botanical Garden; Darwin, Northern Territory, Australia (12°28'S, 130°50'E). **HP** (**od**): 2002/733; 4 **PP**: 2002/734, 2002/735, 2002/736, 2002/737. **Remarks**: Nucleospecies (Tab. 6).

caudatum Strobilidium (FROMENTEL, 1876) FOISSNER, 1987 – PETZ & FOISSNER (1992) J. Protozool. **39**: 160. **OT**: Forest pond; near the Grabensee, Salzburg, Austria (47°59'N, 13°05'E). 2 **NP** (**od**): 1993/58, 1993/59. **Remarks**: Protonym: *Strombidion c*. FROMENTEL, 1876 – Études microzoaires: 264.

caudatus namibiensis Pseudouroleptus FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 652. **OT**: Soil from margin of a small pond; Aubschlucht near the village of Büllsport, Namibia (24°0'S, 16°20'E). **HP** (**od**): 2002/452; 4 **PP**: 2002/449, 2002/453, 2002/454, 2002/455.

caudatus Uroleptus (STOKES, 1886) DRAGESCO, 2003 – Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**: 14. **OT**: Limnetic sites; Butare, Rwanda (about 2°35'S, 29°44'E) and Lake Tanganyika, Burundi (3°19'S, 29°19'E). 3 **NP** (unspecific **od** on page 7): 2003/72, 2003/75, 2003/140. **Remarks**: Protonym: *Holosticha c*. STOKES, 1886 – Proc. Am. phil. Soc. **23**: 25.

cavicola amicronucleata Colpoda FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 910. **OT**: Bark from *Moringa ovalifolia* trees (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). 3 **SP** (**od**): 2002/156; 2002/158 (silver carbonate method); 2002/157 (wet silver nitrate method). 7 **PP**: 2002/159, 2002/160; 2002/161, 2002/162 (two wet silver nitrate method); 2002/163, 2002/164, 2002/165 (three Feulgen stainings). **Remarks**: Three slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

cavicola Histriculus (KAHL, 1935) BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 213. **OT**: Soil of an arable land; near Salzburg, Austria (about 47°N, 13°E). 4 **NP? (sd)**: 1986/65, 1986/66, 1986/67, 1986/68. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Location according to slides. Protonym: *Oxytricha c*. KAHL, 1935 – Tierwelt Dtl. **30**: 841. Currently *Sterkiella c*. and nucleospecies of the latter genus (Tab. 6).

chardezi Holostichides FOISSNER, 1987 **–** Zool. Beitr. N. F. **31**: 203. **OT**: Soil; Insel Santo Antao, Ribeira do Paul, Cap Verde Islands, Atlantic Ocean (17°5'N, 25°10'W). **HP** (unspecific **od** on page 190): 1988/143 (incorrectly labelled as "genotype"); **PP**: 1988/144. **Remarks**: Nucleospecies (Tab. 6).

chilensis Epitholiolus (BÜRGER, 1906) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 165. **OT**: *Stipagrostis* and shrub remnants; Southern Namib Desert, dune 45 at road to the Sossus Vlei, Namibia (24°50'S, 15°30'E). 2 **NP** (**od**): 2002/272, 2002/273. **Remarks**: Protonym: *Lacrimaria chilensis* BÜRGER, 1906 – Anales Univ. Chile **117**: 427. Nucleospecies of *Epitholiolus* FOISSNER, AGATHA & BERGER, 2002 (Tab. 6).

chlorellata Vorticella STILLER, 1940 [Arch. Hydrobiol. **36**] – FOISSNER & BROZEK (1996) Int. Revue ges. Hydrobiol. **81**: 341. **OT**: Attached to planktonic colonies of *Anabaena* sp.; Lake Grabensee, Salzburg, Austria (48°0'N, 13°5'E). 4 **NP** (**od**): 1998/119; 1998/120, 1998/121, 1998/122 (three dry silver nitrate method). **Remarks**: Two more slides than indicated were deposited. Misspelled *V. chlorostigma* in the "Material and Methods" chapter (page 330, cp. 341 "specimens from Salzburg").

chlorelligera Askenasia KRAINER & FOISSNER, 1990 – J. Protozool. **37**: 425. **OT**: Excavated groundwater ponds near Graz, Styria, Austria (47°04'N, 15°25'E). 2 **SP** (unspecific **od** on page 415): 1992/4 (Fig. 26), 1992/10; 2 **PP**: 1992/5, 1992/37. **Remarks**: Two slides are labelled as "holotypes" violating Art. 73.2 (ICZN 1999), thus symphoronts.

chlorelligera Pelagothrix FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 395. **OT**: Höglwörther See, a small lake in southern Bavaria, Germany (47°49'N, 12°50'E). **HP** (**od**): 1999/70; 2 **PP**: 1999/71, 1999/73 (incorrectly labelled as *Holophrya c.*). **Remarks**: Since the slides are of mediocre quality, FOISSNER et al. (1999: 395) declared the figures 13-24 as additional type material. Nucleospecies (Tab. 6).

chlorelligerum Monodinium KRAINER, 1995 – Lauterbornia **21**: 48. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). **HP?** (unspecific **od** on page 40): 1992/16. **Remarks**: Mislabelled as "neotype" of *M. vorax*, an undescribed species; identification needs clarification.

chlorostigma Vorticella (EHRENBERG, 1831) EHRENBERG, 1838 – FOISSNER & BROZEK (1996) Intern. Revue ges. Hydrobiol. **81**: 344. **OT**: Peat-bog; Ibmer Moor near the village of Buch, Upper Austria (48°03'N, 12°E). 4 **NP** (**od**): 1998/135, 1998/136, 1998/137, 1998/138 (all dry silver nitrate method). **Remarks**: Protonym: *Carchesium c.* EHRENBERG, 1831 – Abh. Akad. Wiss. Berlin **1832**: 93.

cinctum Pelagovascicola (VOIGT, 1901) JANKOWSKI, 1980 – KRAINER (1995) Lauterbornia **21**: 45. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'E). 2 **NP** (unspecific **od** on page 40): 1992/12; 1992/13 (dry silver nitrate method and labelled as *Cyclotrichium c.*). **Remarks**: Protonym: *Cyclotrichium cinctum* VOIGT, 1901 – Zool. Anz. **25**.

citrina Steinia BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 225. **OT**: Litter and soil of a goat pasture between Nauplion and Tripolis, Peleponnesus, Greece (37°34'N, 22°48'E). **HP** (unspecific **od** on page 195): 1986/83; **PP**: 1986/84. **Remarks**: Currently *Cyrtohymena* (*Cyrtohymena*) *c.* according to FOISSNER (1989, Sber. Österr. Akad. Wiss., Math.-Naturwiss. **196**: 239) and FOISSNER (2004, Denisia **13**: 370, although not formally transferred.

citrina Uroleptopsis KAHL, 1932 – BERGER (2004) Acta Protozool. **43**: 102. **OT**: Sandy littoral; ahead the campground Pra' delle Torri near the village of Duna Verde, northern Adriatic Sea, Italy (45°34'N, 12°49'E). 6 **NP** (**od**): 2003/146, 2004/301, 2004/302, 2004/303, 2004/304, 2004/305. **Remarks**: Further slides (inv. no. 2003/147, 2003/148, 2003/149, 2003/150) are not labelled as "neotypes", although on page 110 BERGER (2004) mentioned "the slide containing the neotype specimen and nine slides containing some further specimens, including those depicted in the present paper [viz. ontogenesis], of the neotype population". Nucleospecies also of subgenus *Uroleptopsis* (for new status see BERGER 2004, Acta Protozool. **43**: 114 and Tab. 6).

clarissima Anigsteinia (ANIGSTEIN, 1912) ISQUITH, 1968 – DRAGESCO (2002) Linzer biol. Beitr. **34**: 1562. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 3 **NP** (unspecific **od** on page 1547): 2002/791, 2002/792, 2002/793. **Remarks**: Protonym: *Blepharisma clarissimum* ANIGSTEIN, 1912 – Arch. Protistenk. **24**.

claudicans Pseudocarchesium (PENARD, 1922) FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 215. **OT**: Soil of a haline lake; surroundings of the Neusiedlersee, a soda lake in the "hell" region near Illmitz, Burgenland, Austria (47°45'N, 16°49'E). 4 **NP** (**od**): 1988/35, 1988/36 (wet silver nitrate method); 1988/37, 1988/38 (two dry silver nitrate method). **Remarks**: Two slides announced, but more designated on label. Protonym: *Vorticella c.* PENARD, 1922 – Études Infusoires. The genus needs nomenclatural verification (cp. AESCHT 2001).

claviforme Spathidium KAHL, 1930 [Arch. Protistenk. **70**: 389] – FOISSNER (1987) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 228. **OT**: Soil of an alternatively farmed field; Lobau, Vienna, Austria (48°9'N, 16°31'E). 3 **NP?** (**sd**): 1988/153, 1988/154, 1988/155. **Remarks**: Neotypification not mentioned in paper, but slides labelled.

clavistoma oligostriatum Paracondylostoma FOISSNER & KREUTZ, 1998 – Acta Protozool. **37**: 228. **OT**: Soil and sediment from rock-pools; Laja near the farm of Mr. Eisenberg, vicinity of Puerto Ayacucho, Venezuela (5°40'N, 67°35'W). **HP** (**od**): 1998/45; **PP**: 1998/46.

coemeterii Arcuospathidium (KAHL, 1943) FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 652. **OT**: *Pinus nigra* forest soil; Stampftal near Vienna, Austria (47°53'N, 16°02'E). 3 **NP** (**od**): 2007/157, 2007/158, 2007/159. **Remarks**: Currently *Cultellothrix c.* according to FOISSNER & XU (2007, Monogr. Biologicae **81**: 275).

coeruleus Heterostentor SONG & WILBERT 2002 – Acta Protozool. **41**: 49. **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **HP** (unspecific **od** on page 24): 2001/4. **Remarks**: "Paratypes" deposited in the Laboratory of Protozoology, College of Fisheries, Ocean University of Qingdao, China. Nucleospecies (Tab. 6).

colisarum Heteropolaria FOISSNER & SCHUBERT, 1977 [Acta Protozool. **16**: 231] – FOISSNER, HOFFMANN & MITCHELL (1985) J. Fish Diseases **8**: 145. **TH**: Green sunfish *Lepomis cyanellus* RAFINESQUE, 1819. **OT**: Cultured in a tank at the Fish Farming Experimental Station of the U.S. Fish and Wildlife Service, Stuttgart, Arkansas (34°30'N, 91°33'W). 3 **NP?** (**sd**): 1982/75 (dry silver nitrate method); 1982/76, 1982/77. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes". Involved in the 'red-shore' disease of various North American freshwater fishes.

colpoda Colpidium (LOSANA, 1829) GANNER & FOISSNER, 1989 – Hydrobiologia **182**: 191. **OT**: Macrophyte-based waste water treatment system; Ardenberg, Upper Austria (48°8'N, 12°58'E). 2 **NP** (**od** without number on page 182): 1989/7; 1989/8 (wet silver nitrate method). **Remarks**: Location according to slides. Protonym: *Paramaecia kolpoda* LOSANA, 1829 – Mem. R. Accad. Sci. Torino (Class. Sci. Fis. e Mat.) **29**: 45. Nucleospecies of *Colpidium* STEIN, 1860 (Tab. 6).

conspicuus Dileptus KAHL, 1931 [Tierwelt Dtl. **21**: 209] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 174. **OT**: Soil; near Thingvellier, southwest of Icland (64°15'N, 21°10'W). 2 **NP** (**od**): 1988/94, 1988/95.

contortus Metopus (QUENNERSTEDT, 1867) KAHL, 1932 – DRAGESCO (1996) Cah. Biol. mar. **37**: 279. **OT**: Marine sand; Thau lagoon Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2 **NP?** (**sd**): 1997/7, 1997/8. **Remarks**: Neotypification not mentioned in paper, but labels refer to paper. Site according to paper. Protonym: *Metopides c*. QUENNERSTEDT, 1867 – Acta Univ. lund. **2**: 23.

contractile Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 263. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP** (**od**): 2002/356; 4 **PP**: 2002/350, 2002/357, 2002/358, 2002/361. **Remarks**: Unmentioned "paratypes" are included in a further slide (inv. no 2002/342, Fig. 36).

convallaria Cymatocylis LAACKMANN, 1910 [Deutsch. Südpol.-Exped. **11** (Zool. 3)] – PETZ, SONG & WILBERT (1995) Stapfia **40**: 154. **OT**: Pelagial; Weddel Sea, Antarctica (between 68°32'–70°20'S and 06°05'–12°14'W). **NP** (**od** without number): 2001/102.

cooperi Arcuospathidium FOISSNER, 1996 – Biol. Fertil. Soils **23**: 288. **OT**: Moss and soil; Marion Island, Prince Edward Islands, South Africa (46°54'45"S, 37°44'37'E). **HP** (unspecific **od** on page 283): 1997/57; **PP**: 1997/58.

corlissi Meseres PETZ & FOISSNER, 1992 – J. Protozool. **39**: 162. **OT**: Dried mud from an astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher, urban area of Salzburg, Austria (47°47'N, 13°02'E). 2 **SP** (**od**): 1993/52, 1993/53; **PP**: 1993/54. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

corticicola Pentahymena FOISSNER, 1994 – Arch. Protistenk. **144**: 290. **OT**: Bark of an *Acacia* tree; ranch house "La Casona" , Santa Rosa National Park, Costa Rica (10°50'N, 85°40'W). **HP** (**od**): 1997/38; **PP**: 1997/39 (wet silver nitrate method). **Remarks**: Nucleospecies (Tab. 6).

"*costaricana Armatospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 313. **OT**: Horse pasture soil; surrounding of the Selva Verde Lodge, Pto. Viejo, Costa Rica (10°27'N, 84°W). **HP** (**od**): 2007/68. 4 **PP**: 2007/65, 2007/66, 2007/67, 2007/68. **Remarks**: Nucleospecies (Tab. 6). Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

costaricana Bicoronella FOISSNER, 1995 – Arch. Protistenk. **145**: 64. **OT**: Soil; near the ranch house "La Casona", Santa Rosa National Park, Costa Rica (10°50'N, 85°40'W). **HP** (**od**): 1997/92; **PP**: 1997/93. **Remarks**: Nucleospecies (Tab. 6).

costaricanum Trachelophyllum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 160. **OT**: Soil from coastal swamp near Punta Cocles; Caribbean coast of Costa Rica (9°40'N, 82°40'W). **HP** (**od**): 2002/752; **PP**: 2002/753.

costaricanus Dileptus FOISSNER, 1995 – Arch. Protistenk. **145**: 40. **OT**: Upper soil layer; near the ranch house "La Casona", Santa Rosa National Park, Costa Rica (10°50'N, 85°38'W). **HP** (**od**): 1997/96; **PP**: 1997/97.

costatus Leptopharynx MERMOD, 1914 [Revue suisse Zool. **22**: 58] – FOISSNER (1979) Int. Revue ges. Hydrobiol. **64**: 127. **OT**: Neuston of alpine pools; Hexenküche, Glockner, Salzburg, Austria (47°7'N, 12°49'E). **NP?** (**sd**): 1981/46 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slide designated, although mislabelled as "paratype". Nucleospecies (Tab. 6).

crassulum Strombidium (LEEGAARD, 1915) KAHL, 1932 – PETZ, SONG & WILBERT (1995) Stapfia **40**: 114. **OT**: Endopagial of pancake and multiyear sea ice; Weddel Sea, Antarctica (between 68°38'–70°21'S and 06°05'–8°53'W). **NP** (**od** without number): 2001/10. **Remarks**: Protonym: *Laboea crassulum* LEEGAARD, 1915 – Nytt Mag. Naturvid. **53**.

cratera Codonella (LEIDY, 1877) IMHOF, 1885 – FOISSNER & WILBERT (1979) J. Protozool. **26**: 100. **OT**: Plankton; Mattsee near Salzburg, Austria (47°58'N, 13°6'E). 2 **NP?** (**sd**): 1993/62, 1993/63. **Remarks**: "Typification" not mentioned in the original paper, but slides designated, although one mislabelled as "paratype". Protonym: *Difflugia c*. LEIDY, 1877 – Proc. Acad. nat. Soc. Philad. **1877**: 307.

crenata Aspidisca FABRE-DOMERGUE, 1885 [J. Anat. Physiol. **21**] – SONG & WILBERT (2002) Acta Protozool. **41**: 58. **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **NP?** (**sd**): 2001/6. **Remarks**: Neotypification not mentioned, but "new type" according to slide, although mislabelled as "paratype", and an external sheet of paper.

cristata Pseudourostyla (JERKA-DZIADOSZ, 1964) BORROR, 1972 – OBERSCHMIDLEITNER & AESCHT (1996) Beitr. Naturk. Oberösterreichs **4**: 14. **OT**: Activated sludge plant; Asten near Linz, Upper Austria (48°13'N, 14°24'E). **NP** (unspecific **od** on page 7): 1997/137. **Remarks**: Protonym: *Urostyla c*. JERKA-DZIADOSZ, 1964 – Acta Protozool. **2**: 123. Nucleospecies of *Pseudourostyla* BORROR, 1972 (Tab. 6), which is the nucleogenus of Pseudourostylidae JANKOWSKI, 1979 (Tab. 7). Not included in the list of AESCHT (2003), because the specificity of the slide was only clarified later. For complications with "type" material and supplements to neotypification see BERGER (2006, Monogr. Biologicae **85**: 759ff.).

crystallis Thigmokeronopsis PETZ, 1995 – Europ. J. Protistol. **31**: 138. **OT**: Sea ice; Weddel Sea, Antarctica (71°S, 11°80'W). **HP** (**od**): 2001/143; **PP**: 2001/144.

cultriforme Arcuospathidium (PENARD, 1922) FOISSNER, 1984 – Stapfia **12**: 78. **OT**: Soil of a coniferous forest ("Ebenauerwald"); southern Burgenland, Austria (47°8'N, 16°30'E). 2 **NP?** (**sd**): 1984/5, 1984/56. **Remarks**: Neotypification not mentioned in paper (see page 8), but

slides labelled, although incorrectly as "paratype". Protonym: *Spathidium c*. PENARD, 1922 – Études Infusoires: 25. Nucleospecies of *Arcuospathidium* FOISSNER, 1984 (Tab. 6), which is the nucleogenus of Arcuospathidiidae FOISSNER & XU, 2007 (Tab. 7). Currently subspecies rank according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 299).

cultriforme megastoma Arcuospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 300. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/355; 4 **PP**: 2002/346, 2002/353, 2002/359, 2002/361.

"*cuneata Apertospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 346. **OT**: Upper soil layer of a small swamp; surroundings of the town of Eubenangee, south of Cairns, Australia (about 17°S, 145°E). **HP (od)**: 2007/36; **PP**: 2007/34, 2007/35, 2007/36. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

cylindrata Tintinnopsis KOFOID & CAMPBELL, 1929 [Univ. Calif. Publs Zool. **34**: 33] – FOISSNER & WILBERT (1979) J. Protozool. **26**: 97. **OT**: Plankton; Salzachsee near Salzburg, Austria (47°50'N, 13°1'E). 2 **NP? (sd)**: 1993/60, 1993/61 (labelled as *Tintinnidium c*.). **Remarks**: Neotypification not mentioned in paper, but slides designated, although one mislabelled as "paratype".

cylindricum Telotrochidium FOISSNER, 1978 – Annln naturh. Mus. Wien **81**: 554. **OT**: Rainwater pond; Guttal at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°10'N, 12°49'E). 2 **SP (sd)**: 1981/70 (dry silver nitrate method); 1981/71 (opal blue staining). **Remarks**: "Typification" not mentioned in the original paper; but two slides are labelled as "holotype", because of different preparation methods, thus symphoronts. Three further slides (inv. no. 1981/68, 1981/69 (wet silver nitrate method), 1986/28), also labelled as "holotype", were collected in Gastein 1980, thus vouchers.

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darbyshirei Afrothrix FOISSNER, 1999 – Biodiversity and Conservation **8**: 376. **OT**: Grassland soil near the Sheldrick waterfalls in the Shimba Hills Nature Reserve, Kenya (4°13'S, 39°25'E). **HP (od)**: 1999/35; **PP**: 1999/36. **Remarks**: Nucleospecies (Tab. 6).

decolor Geleia KAHL, 1933 [Tierwelt Nord- und Ostsee **II**. **c3**: 76] – DRAGESCO (1999) Stapfia **66**: 16. **OT**: Needs clarification. 2 **NP?** (unspecific **od** on page 7): 1999/153, 1999/152. **Remarks**: Different localities and sampling years: Roscoff 1965 (4 marks, first slide) and Cotonou 1976 (4 marks). Labels undesignated, thus "typification" according to paper. Since the unavailable genus was revalidated by FOISSNER in COOMBS et al. (1998, The karyorelictids: 308), nomenclatural authorship is complicated, viz. a new combination is not supported by ICZN (1999 Art. 51.3, 50.1, Rec. 50C, 51F).

decorata Lamtostyla FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 712. **OT**: Litter from *Welwitschia mirabilis*; Central Namib Desert, at road margin between Welwitschia Drive and Bloedkoppie, about 100 km east of Swakomund, Namibia (22°45'S, 15°25'E). **HP (od)**: 2002/289; 3 **PP**: 2002/290, 2002/291, 2002/292.

"*deforme Arcuospathidium*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 170. **OT**: Soil from a green portion ("green river bed"); Chobe River near the Muchenje Safari Lodge, Botswana (18°S, 24°40'E). **HP (od)**: 2007/50; 7 **PP**: 2007/47, 2007/49, 2007/46, 2007/45, 2007/43, 2007/42, 2007/48. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

deforme Spathidium KAHL, 1928 [Arch. Hydrobiol. **19**: 63] – LEITNER & FOISSNER (1997) Linzer biol. Beitr. **29**: 366. **OT**: Activated sludge of two stage sewage-treatment plant; Siggerwiesen, Salzburg, Austria (47°51'N, 13°0'E). 2 **NP (od)**: 1997/21 (three marks), 1997/22 (six marks). **Remarks**: Two "neotypes" announced in the paper, however, second slide unspecified, but specimens marked.

depressa Frontonia (STOKES, 1886) KAHL, 1931 – FOISSNER (1987) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 253. **OT**: Soil of a mixed forest (Asperulo-Fagetum); near village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **NP? (sd)**: 1986/7 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated. Protonym: *Colpoda d*. STOKES, 1886 – Proc. Am. phil. Soc. **23**: 566.

derouxi Gastronauta BLATTERER & FOISSNER, 1992 – Arch. Protistenk. **142**: 109. **OT**: Light redish-brown soil grown with *Opuntia* sp. and tufts of grass; Garajau Kap, Madeira, Portugal (32°50'N, 17°0'W). **HP (od)**: 2000/10; 3 **PP**: 2000/11, 2000/51, 2000/52. **Remarks**: Habitat according to page 102. Only one "paratype" announced, but three labelled.

deserticola Urosomoida FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 787. **OT**: Dune soil (sand); escarpment of central Namib Desert, about 20 km north of the village of Solitaire, Namibia (23°50'S, 16°0'E). **HP (od)**: 2002/257; **PP**: 2002/258 (Fig. 35).

diadematа Holosticha (REES, 1884) KAHL, 1932 – SONG & WILBERT (2002) Acta Protozool. **41**: 53 **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **NP? (sd)**: 2001/9. **Remarks**: Neotypification not mentioned, but "new type" according to slide and an external sheet of paper. Protonym: *Amphisia d*. REES, 1884 – Tijdschr. ned. dierk. Vereen, Suppl. Deel **I**: 650f.

dicentrarchi Philasterides DRAGESCO A., DRAGESCO J., COSTE, GASC, ROMESTAND, RAYMOND & BOUIX, 1995 – Europ. J. Protistol. **31**: 329. **TH**: Fish *Dicentrarchus labrax* (LINNAEUS, 1758). **OT**: St. Clement, Montpellier area, France (44°25'N, 5°12'E). **HP (od)**: 2006/81. **Remarks**: Site according to label. Considered as junior subjective synonym of *Miamiensis avidus* THOMPSON & MOEWUS, 1964 by SONG & WILBERT (2000, Zool. Anz. **239**: 62). For comparison "type" slides of the latter are in USNM.

dieckmanni Keronopsis FOISSNER, 1998 – Europ. J. Protistol. **34**: 224. **OT**: Saline soil; shore of Lake Baringo, Kenya (about 0°45'N, 36°E). 3 **SP** (unspecific **od** on page 196): 1997/116, 1997/117, 1997/118. **Remarks**: "1 holotype and 1 or 2 paratypes" are generally mentioned on page 196. Two slides are labelled as "holotype" and one as "syntype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

dinoferus Maristentor LOBBAN, SCHEFTER, SIMPSON, POCHON, PAWLOWSKI & FOISSNER 2002 – Marine Biology (Berlin) **140**: 417. **OT**: Coral reef; Apra Harbor, Guam, Mariana Islands, USA (about 13°27'N, 144°40'E). 2 **SP** (**od**): 2000/48, 2000/74 (in 70 % ethanol in three vowels); 2 **PP**: 2000/49, 2000/50. **Remarks**: Slide and fixed material labelled as "holotype", because of different preparation methods, thus symphoronts. Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

dioplites Apertospathula FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 322. **OT**: Soil from margin of a small pond; Aubschlucht near the village of Büllsport, Namibia (23°55'S, 16°15'E). **HP** (**od**): 2002/449. 3 **PP**: 2002/450, 2002/451, 2002/452.

discoidea Hausmanniella (GELLERT, 1956) FOISSNER, 1984 – Stapfia **12**: 103. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel, Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). 3 **NP?** (**sd**): 1984/74 (wet silver nitrate method); 1984/75, 1984/76 (silver carbonate method; Fig. 9). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes" and "genotypes" (e.g. Fig. 9). Protonym: *Colpoda d.* GELLERT, 1956 – Acta biol. hung. **6**: 342; Nucleospecies of *Hausmanniella* FOISSNER, 1984 (Tab. 6), which is the nucleogenus of Hausmanniellidae FOISSNER, 1987 (Tab. 7).

discolor Paraurotricha (KAHL, 1930) FOISSNER, 1983 – Annln naturh. Mus. Wien **84**B: 60. **OT**: Alpine ponds; Gastein, Salzburg, Austria (47°7'N, 13°8'E). **NP?** (**sd**): 1981/6 (wet silver nitrate method). **Remarks**: Neotypification and exact site not mentioned in paper, but slide designated, although mislabelled as "genotype". Protonym: *Urotricha d.* KAHL, 1930 – Tierwelt Dtl. **18**: 59. Nucleospecies (Tab. 6).

ditis Trachelocerca (WRIGHT, 1982) FOISSNER & DRAGESCO, 1996 – Arch. Protistenk. **147**: 75. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (**od**): 2002/ 807, 2002/ 808. **Remarks**: Protonym: *Trachelloraphis d.* WRIGHT, 1982 – Cah. Biol. mar. **23**.

dorsicirrata Gastrostyla FOISSNER, 1982 – Arch. Protistenk. **126**: 69. **OT**: Soil; alpine, grazed hay meadow near Fusch, Glockner-Hochalpenstraße, Salzburg, Austria (47°10'N, 12°49'E). **HP** (**sd**): 1982/58. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently classified in subgenus (Tab. 5) according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 720).

dorsiincisura Urosomoida FOISSNER, 1982 – Arch. Protistenk. **126**: 119. **OT**: Soil of an intensely farmed grassland near Zwentendorf, Lower Austria (48°21'N, 15°54'E). **HP** (**sd**): 1981/100. **Remarks**: "Typification" not mentioned in the original paper, but slide designated.

dragescoi Balantidioides FOISSNER, ADAM & FOISSNER I., 1982 – Protistologica **18**: 217. **OT**: Soil of an intensely farmed grassland near Zwentendorf, Lower Austria (48°21'N, 15°54'E). 2 **SP** (**sd**): 1981/77; 1981/78 (wet silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; but two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

dragescoi Nassula FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 424. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°55'S, 15°55'E). **HP** (**od**): 2002/65; 2 **PP**: 2002/68, 2002/650 (all wet silver nitrate method).

dragescoi Platyophryides FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 243. **OT**: Soil of a spruce forest near Ulm/Donau, Germany (48°24'N, 10°0'E). **HP** (unspecific **od** on page 190): 1988/58. **Remarks**: Currently *Ottowphrya d.* and nucleospecies of the latter genus (Tab. 6)).

dubia Platyophrya FOISSNER, 1980 – Acta Protozool. **19**: 32. **OT**: Puddle in the east of the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). 2 **SP** (**sd**): 1996/73 (two marks, dry silver nitrate method); 1996/76 (six marks, opal blue staining); 2 **PP**: 1996/74 (dry silver nitrate method); 1996/75 (opal blue staining). **Remarks**: "Typification" not mentioned in the original paper, but two slides, deposited much later, are labelled as "holotype", because of different preparation methods, moreover eight specimens are marked, violating Art. 73.2 (ICZN 1999), thus symphoronts.

dumonti Holostichides FOISSNER, 2000 – Europ. J. Protistol. **36**: 273: **OT**: Coniferous forest soil; near the town of Savonlinna, Finland (61°52'N, 28°53'E). **HP** (**od**): 2000/83; 3 **PP**: 2000/84, 2000/85, 2000/86.

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edaphicus Clavoplites FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 213. **OT**: Red, sandy soil under shrubs between the village of Erldunda and the Ayers Rock, Australia (26°S, 132°30'E). **HP** (**od**): 2002/720; 4 **PP**: 2002/716, 2002/721, 2002/722, 2002/723. **Remarks**: Nucleospecies (Tab. 6).

edaphoni Colpoda FOISSNER, 1980 – Zool. Jb. Syst. **107**: 414. **OT**: Soil; Hochtor at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°04'N, 12°50'E). **HP** (**sd**): 1981/25 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Two further slides labelled as "neotypes (inv. no. 1988/75, 76) refer to FOISSNER (1987), though this paper is not mentioned as authoritative redescription in the revision of FOISSNER (1993).

edaphoni Lamtostyla BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 215. **OT**: Scattered in a lower part of a bundle of straw, which was in contact with the soil; Salzburg, Austria (47°48'N, 13°02'E). **HP** (unspecific **od** on page 195): 1986/81; **PP**: 1986/82. **Remarks**: Currently *Amphisiella e.* according to EIGNER (1999, Europ. J. Protistol. **35**: 44).

edaphoni Tetrahymena FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 247. **OT**: Soil of an alpine pasture; Guttal at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°10'N, 12°49'E). **HP** (**sd**): 1986/12. **Remarks**: "Typification" probably par lapsus not mentioned in the paper, but slide designated as "holotype", thus subsequently designated herein by the original author. Federal state par lapsus "Carinthia".

elbraechteri Leegaardiella PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 134. **OT**: Pelagial; Weddell Sea, Antarctica

(69°46'S, 9°00'W). **SP? (od)**: 2001/136; **PP**: 2001/102. **Remarks**: Slide bears the general note "Typ" (type) and one mark, but since further species are included, the status remains to be clarified.

elegans Amphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 674. **OT**: Soil from Wadi Ram about 10 km east of Al Aqaba, Jordan (29°30'N, 15°35'E). **HP (od)**: 2002/594; 4 **PP**: 2002/595, 2002/596, 2002/597, 2002/598.

elegans Euplotopsis (KAHL, 1932) BORROR & HILL, 1995 – DRAGESCO (2003) Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**: 8. **OT**: Infusions of soil and mosses; Butaré, Rwanda (2°35'S, 29°4'E). **NP**? (unspecific **od** on page 7): 2003/84 (dry silver nitrate method 1986). **Remarks**: A further slide (inv. no. 2003/74, wet silver nitrate method; labelled as *Euplotes e.*) was collected in Cotonou, Benin 1977 and thus likely refers to DRAGESCO & DRAGESCO-KERNÉIS (1986, Faune tropicale (Éditions de l'Orstom, Paris) **26**: 505). Although DRAGESCO (2003) unspecifically mentioned two "neotypes" considering the populations as conspecific, SCHWARZ & STOECK (2007, Acta Protozool. **46**: 193ff.) established the new *Euplotes pseudoelegans* for the population from Cotonou (incorrectly cited as Cotonau and not mentioning the Rwanda population and the latter reference of DRAGESCO). Since SCHWARZ et al. (2007, J. Eukaryot. Microbiol. **54**: 125ff.) neotypified an euryhaline *Euplotes elegans* from Denmark, without re-examination and citing existing material of DRAGESCO (2003) a petition to the International Commission of Zoological Nomenclature is of course necessary. Protonym: *Euplotes e*. KAHL, 1932 –Tierwelt Dtl. **25**: 634.

elegans Ilsiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 950. **OT**: Bark of a *Colophospermum mopane* tree; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). 2 **SP (od)**: 2002/365; 2002/369 (wet silver nitrate method); 3 **PP**: 2002/366, 2002/367, 2002/368. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

elegans Longispatha FOISSNER, XU & KREUTZ, 2005 – J. Eukaryot. Microbiol. **52**: 362. **OT**: Field (Mahada) soil; surrounding of the village of El Sapo and the Orinoco River, that is about 50 km north of Pto. Ayacucho, Venezuela (about 6°N, 75°W). **HP** (unspecific **od** on page 360): 2007/14; **PP**: 2007/11, 2007/12, 2007/13. **Remarks**: Nucleospecies (Tab. 6).

elegans Oxytricha FOISSNER, 1999 – Biodiversity and Conservation **8**: 384. **OT**: Forest soil near the Sheldrick waterfalls in the Shimba Hills Nature Reserve, Kenya (5°S, 39°25'E). **HP (od)**: 1999/39; **PP**: 1999/40.

elegans Wallackia FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 643. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/375; 2 **PP**: 2002/343, 2002/376. **Remarks**: Three further slides (inv. no. 2002/377–379) labelled as "paratype", represent vouchers according to table 1 in their paper.

elliotti Colpoda BRADBURY & OUTKA, 1967 [J. Protozool. **14**: 345] – FOISSNER & SCHUBERT (1983) Acta Protozool. **22**: 136. **LT**: Soil; Tullnerfeld, Lower Austria (48°19'N, 16°0'E). 2 **NP? (sd)**: 1981/31 (dry silver nitrate method); 1981/32 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in the original paper, but slides designated, although mislabelled as "paratypes". Location according to slides.

elongata Pseudovorticella (FROMENTEL, 1876) LEITNER & FOISSNER, **1997** – Europ. J. Protistol. **33**: 21. **OT**: Plant B of a two stage activated sludge plant at Siggerwiesen, Salzburg, Austria (47°51'N, 13°0'E). 4 **NP (od)**: 1998/143, 1998/144 (both dry silver nitrate method); 1998/145, 1998/146. **Remarks**: The latter two of the four "neotypes" announced according to publication are labelled as vouchers. Protonym: *Vorticella e*. FROMENTEL, 1876 – Études microzoaires: 229.

elongatum Telotrochidium FOISSNER, 1975 – Protistologica **11**: 410. **OT**: Streamlet Gaisbach; Wartberg ob der Aist, Upper Austria (48°19'N, 14°30'E). 58 **SP (sd)**: 1975/101–157, 1975/200 (all dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; slides "typified" on a sheet of paper, but not labelled. Location according to personal communication.

emergens Strombidium (LEEGAARD, 1915) KAHL, 1932 – PETZ, SONG & WILBERT (1995) Stapfia **40**: 117. **OT**: Endopagial of multiyear sea ice of the Weddell Sea, Antarctica (between 69°46'–70°21'S and 08°53'–11°00'W). **NP (od** without number): 2001/141. **Remarks**: Protonym: *Laboea emergens* LEEGAARD, 1915 – Nytt Mag. Naturvid. **53**.

emmerichi Litonotus PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 43. **OT**: Multiyear sea ice; Weddell Sea, Antarctica (70°21'S, 8°53'W). **SP? (od)**: 2001/133; **PP**: 2001/32. **Remarks**: Slide bears the general note "Typ" (type) and one big circle, but since further species are included, the status remains to be clarified.

enchelyodontides Obliquostoma FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 116. **OT**: Soil; Escarpment of the central Namib Desert, surroundings of the Ameib Guest Farm, about 120 km northeast of the town of Swakopmund, Namibia (21°50'S, 15°35'E). **HP (od)**: 2002/413; **PP**: 2002/414. **Remarks**: Currently *Declivistoma e*. (see FOISSNER, AGATHA & BERGER in BERGER & AL-RASHEID, this volume) and nucleospecies of the latter genus (Tab. 6)

enchelyodontides Semispathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 327. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/351; 5 **PP**: 2002/342 (Fig. 36), 2002/343, 2002/358, 2002/360, 2002/375. **Remarks**: Nucleospecies (Tab. 6).

espeletiae Fragmocirrus FOISSNER, 2000 – Stud. Neotrop. Fauna & Environm. **35**: 64. **OT**: On *Espeletia* leaves from dead, rotting *Espeletia* trunks; Cordillera de Merida, Paramo de Piedras Blancas about 2 km east of the Pico del Aquila, Venezuela (08°52'N, 70°48'W). **HP (od)**: 2000/118; 5 **PP**: 2000/119, 2000/120, 2000/121, 2000/122, 2000/123. **Remarks**: Nucleospecies (Tab. 6).

espeletiae Sikorops FOISSNER, 2000 – Stud. Neotrop. Fauna & Environm. **35**: 56. **OT**: On *Espeletia* leaves from dead, rotting *Espeletia* trunks; Cordillera de Merida, Paramo de Piedras Blancas about 2 km east of the Pico del Aquila, Venezuela (08°52'N, 70°48'W). **HP (od)**: 2000/124; **PP**: 2000/125.

etoschense Apobryophyllum FOISSNER, 1998 – Quekett J. Microsc. **38**: 209. **OT**: Soil from margin (*Sporobolus* grass girdle) of Etosha Pan, Namibia (about 19°S, 16°E). **HP (od)**: 2002/46; 3 **PP**: 2002/47, 2002/48, 2002/49. **Remarks**: Slides deposited and description repeated later, because the original publication was carelessly edited (cp. FOISSNER, AGATHA & BERGER 2002, Denisia **5**: 37, 361).

etoschense Apocolpodidium (*Apocolpodidium*) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 493. **OT**: Highly saline soil; Etosha National Park, Okerfontein water-hole, Namibia (18°45'S, 16°45'E). **HP (od)**: 2002/77 (wet silver nitrate method); 5 **PP**: 2002/78 (wet silver nitrate method); 2002/79; 2002/80, 2002/81, 2002/82 (three dry silver nitrate method). **Remarks**: Nucleospecies (Tab. 6).

etoschense Arcuospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 292. **OT**: Highly saline swamp soil; Etosha National Park, Okerfontein water-hole, Namibia (18°45'S, 16°45'E). **HP (od)**: 2002/23; 2 **PP**: 2002/24, 2002/25.

etoschense Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 255. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°55'S, 15°55'E). **HP (od)**: 2002/17; 5 **PP**: 2002/18, 2002/19, 2002/20, 2002/21, 2002/22.

etoschense Supraspathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 274. **OT**: Highly saline soil; Etosha National Park, lookout "Etosha", Namibia (18°50'S, 16°30'E). **HP (od)**: 2002/31; 2 **PP**: 2002/32, 2002/33.

etoschensis Bilamellophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 177. **OT**: Soil from *Sporobolus* grass girdle; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/57; 2 **PP** 2002/58, 2002/59.

etoschensis Condylostomides FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 893. **OT**: Highly saline soil; Etosha National Park, road to the Halali rest camp, Namibia (18°55'S, 16°25'E). 2 **SP**: 2002/170, 2002/171; 4 **PP** (all marks on 4 slides figured): 2002/170, 2002/171, 2002/172, 2002/173. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

etoschensis Nassula FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 438. **OT**: Highly saline soil; Etosha National Park, lookout "Etosha", Namibia (18°50'S, 16°30'E). **HP (od)**: 2002/74; 3 **PP**: 2002/31, 2002/75 (wet silver nitrate method); 2002/76.

etoschensis Parabryophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 957. **OT**: Soil from *Moringa ovalifolia* (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). **HP (od)**: 2002/181; 2 **PP**: 2002/182, 2002/183.

etoschensis Pseudokreyella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 1023. **OT**: Highly saline soil; Etosha National Park, Wolfsnes water-hole near the margin of the Etosha Pan, Namibia (19°S, 15°50'E). **HP (od)**: 2002/184; 7 **PP**: 2002/185, 2002/186, 2002/187, 2002/188, 2002/189, 2002/190, 2002/191.

eurystoma Kalometopia (GELLERT, 1950) FOISSNER, 1985 – FOISSNER (1987) Zool. Beitr. N. F. **31**: 269. **OT**: Mosses of spruce trees; Lake Höllerer See, Upper Austria (48°1'N, 12°53'E). 6 **NP? (sd)**: 1988/86 (wet silver nitrate method); 1988/87, 1988/88, 1988/89; 1988/90, 1988/91 (two dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Colpoda e*. GELLERT, 1950 – Annls biol. Univ. szeged. **1**: 313. Considered as junior subjective synonym of *K. duplicata* (PENARD, 1922) by FOISSNER (1993, Protozoenfauna **4/1**: 320).

exigua bidentata Drepanomonas FOISSNER, 1999 – Biodiversity and Conservation **8**: 345. **OT**: Gum tree (*Ficus* sp.) litter; Nairobi Arboretum, Kenya (2°20'S, 36°50'E). 2 **SP (od)**: 1989/28 (dry silver nitrate method); 1989/29; 3 **PP**: 1989/30; 1989/31, 1989/31 (both dry silver nitrate method). **Remarks**: Slides incorrectly labelled as "*D. bispinifera*", which has not been described anywhere. Two slides are labelled as "holotypes", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

exigua exigua Drepanomonas PENARD, 1922 – FOISSNER (1999) Biodiversity and Conservation **8**: 340. **OT**: Spruce needles mixed with some dark humus, mosses, lichens, and grass roots on top of the Hanneck Kogel near the village of Thumersbach, Zell am See, Salzburg, Austria (47°19'N, 12°47'E). 4 **NP (od)**: 1999/15 (Fig. 11), 1999/16; 1999/17, 1999/18 (two dry silver nitrate method). **Remarks**: Mislabelled as "neo-holotype" including five marks (Fig. 11), "neo-paratype" (second slide), respectively. Protonym: *Drepanomonas e*. PENARD, 1922 – Études Infusoires.

exigua Nassula KAHL, 1931 [Tierwelt Dtl. **21**: 220] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 421. **OT**: Soil of a small salt pan; Morrocoy National Park, north coast of Venezuela (about 10°N, 68°W). 3 **NP (od)**: 2002/770, 2002/771, 2002/772 (wet silver nitrate method).

exilis Trachelorаphis DRAGESCO 2002 – Linzer biol. Beitr. **34**: 1556. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). **HP** (unspecific **od** – incorrectly as "neotypes" – on page 1547): 2002/815; **PP**: 2002/816.

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fallax Pelagostrombidium (ZACHARIAS, 1896) KRAINER, 1991 – Europ. J. Protistol. **27**: 66. **OT**: Plankton; excavated groundwater ponds; Leibnitzer Feld, Styria, Austria (46°49'N, 15°32'E). 3 **NP** (unspecific **od** on page 61): 1992/22, 1992/23, 1992/24. **Remarks**: Protonym: *Strombidium fallax* ZACHARIAS, 1896 – ForschBer. biol. Stn Plön **5**.

fastigata Colpoda KAHL, 1931 [Tierwelt Dtl. **21**: 280] – FOISSNER (1980) Zool. Jb. Syst. **107**: 417. **OT**: Soil; Großglockner area, Salzburg, Austria (about 47°N, 13°E). **NP? (sd)**: 1981/26 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated. No precise site given, neither in the original paper nor the given reference. Considered as junior subjective synonym of *C. maupasi* ENRIQUES, 1908 by FOISSNER (1993, Protozoenfauna **4/1**: 123), who also mentioned that KAHL did not indicate the original locus classicus; perhaps it is California.

faurei Remanella DRAGESCO, 1954 – Bull. Soc. zool. Fr. **79**: 58. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). **NP? (sd)**: 2003/101 (year 1962). **Remarks**: Considered as junior subjective synonym of *R. multinucleata* KAHL, 1933 according to FOISSNER (1996,

Europ. J. Protistol. **32**: 235, 247), who revalidated the unavailable genus.

femoralis Zoothamnioides SCHÖDEL, 2006 – Lauterbornia **56**: 132. **OT**: Epizoic on *Dikerogammarus villosus* SOVINSKY, 1894; river Regnitz near Hirschaid, Bavaria, Germany (49°49'N, 10°59'E). 6 **SP? (od)**: 2005/74/11, 2005/74/16 (two dry silver nitrate method; latter including swarmers); 2005/74/12, 2005/74/13 (silver carbonate method), 2005/74/14, 2005/74/15 (hematoxylin staining). **Remarks**: Slides without marks, may be considered as hapantophoronts due to ontogenetic stage(s) (ICZN 1999 Art. 73.3). The material indicated in the paper incorrectly includes voucher specimens (2005/74/1-15, 2005/74/17-29) of the other species described. Nucleospecies (Tab. 6).

filiformis Erniella FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 220. **OT**: Strongly haline coastal soil; Santo Vicente, Cap Verde Islands, Atlantic Ocean (17°N, 25°W). **HP** (unspecific **od** on page 190): 1988/147 (incorrectly labelled as "genotype", on list as "holotype"). **Remarks**: Slide designated as "paratype" (inv. no. 1988/148) from Denmark, thus voucher. Nucleospecies (Tab. 6).

filiformis Parduczia (NOUZAREDE, 1977) DRAGESCO, 1999 – Stapfia **66**: 59. **OT**: Marine sand; Thau lagoon, Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 3 **NP** (unspecific **od** on page 7): 1999/166, 1999/167, 1999/168. **Remarks**: Labels undesignated, thus "typification" according to paper. Protonym: *Geleia f.* NOUZAREDE, 1977 – Bull. Stn. biol. Arcachon (N.S.), Suppl. **28**.

filiformis Perisincirra FOISSNER, 1982 – Arch. Protistenk. **126**: 99. **OT**: Soil of a mesoxerophytic grassland near Zwentendorf, Lower Austria (48°21'N, 15°54'E). **HP (sd)**: 1981/98. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Circinella f.* according to FOISSNER (1994, Europ. J. Protistol. **30**: 169).

filiformis Tracheloraphis DRAGESCO 2002 – Linzer biol. Beitr. **34**: 1554. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). **HP** (unspecific **od** – incorrectly as "neotypes" – on page 1547): 2002/817; **PP**: 2002/818.

filum Trachelolophos (DRAGESCO & DRAGESCO-KERNÉIS, 1986) FOISSNER & DRAGESCO, 1996 – J. Eukaryot. Microbiol. **43**: 23. **OT**: Needs clarification. **NP? (od)**: 2002/851. **Remarks**: One mark on the untypified slide, labelled as from Séte contradicting the original locality, viz. a saline, temporary pool in Benin. According to the paper, the "type" slide contains only four cells, indicating that a further slide may exist in the personal collection of DRAGESCO. The two voucher slides (inv. no. 1995/12, 13) from Roscoff stated in the paper have not been deposited, thus designation according to paper. Due to later deposition other inventory number as stated in the paper, viz. 1995/11. Protonym: *Tracheloraphis f.* DRAGESCO & DRAGESCO-KERNÉIS, 1986 – Faune tropicale **26**: 200.

flava Pseudokeronopsis (COHN, 1866) WIRNSBERGER, LARSEN & UHLIG, 1987 – Europ. J. Protistol. **23**: 79. **OT**: Marine; Little Belt, Denmark (52°02'N, 10°24'E). 2 **NP (od)**: 1986/38, 1986/39. **Remarks**: Protonym, trinominal: *Oxytricha f. f.* COHN, 1866 – Z. wiss. Zool. **16**: 288; currently raised to species rank.

flexilis Dapedophrya (PENARD, 1922) FOISSNER, 1995 – Arch. Protistenk. **145**: 73. **OT**: Soil; near the ranch house "La Casona", Santa Rosa National Park, Costa Rica (10°50'N, 85°38'W). 3 **NP (od)**: 1998/88; 1998/87, 1998/89 (two dry silver nitrate method). **Remarks**: Protonym: *Glaucoma f.* PENARD, 1922 – Études Infusoires. Nucleospecies of *Dapedophrya* FOISSNER, 1995 (Tab. 6).

flexilis Onychodromopsis STOKES, 1887 [Ann. Mag. nat. Hist., Ser. 5 **20**: 107] – PETZ & FOISSNER (1996) Acta Protozool. **35**: 264. **OT**: Terrestrial moss; coast of Core Bay, Prince Edwards Island, Subantarctic, South Africa (about 46°38'S, 37°56'E). 4 **NP (od)**: 2000/140, 2000/141, 2000/142, 2000/143. **Remarks**: The latter two slides include ontogenesis. Nucleospecies (Tab. 6). Currently a junior subjective synonym of *Allotricha antarctica* according to BERGER (1999, Monogr. Biologicae **78**: 268), a supposal defended by FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 44).

flexuosa Tracheloraphis RAIKOV & KOVALEVA, 1968 – DRAGESCO (1999) Annls Sci. nat. **1**: 21. **OT**: Marine sand; Corniche (pointe du Lazaret) in Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2 **NP (od)**: 1998/30, 1998/31. **Remarks**: Unspecifically designated as "type" specimens, but in fact neophoronts; labels refer to the latter paper. Protonym: *T. flexuosus* RAIKOV & KOVALEVA, 1968 – Acta Protozool. **6**: 322. Since the genus has feminine gender, the species name has to be *T. flexuosa* (cp. FOISSNER & DRAGESCO 1996, Arch. Protistenk. **147**: 85).

fluviatilis Benthontophrys FOISSNER & GSCHWIND, 1998 – Ber. Nat.-Med. Ver. Salzburg **12**: 35. **OT**: Windach stream, near the sewage plant of the village of Eching, Bavaria, Germany (about 48°N, 11°E). **HP (od)**: 1999/51; 3 **PP**: 1999/52, 1999/53; 1999/54 (wet silver nitrate method). **Remarks**: Nucleospecies (Tab. 6).

fluviatilis Pseudochilodonopsis FOISSNER, 1988 – Hydrobiologia **162**: 38. **OT**: River Drau between Aßling and Lienz, Eastern Tyrol, Austria (46°49'N, 12°45'E). **HP (od)**: 1988/168 (Fig. 15); **PP**: 1988/170.

foissneri Holosticha PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 159. **OT**: Sea ice; Weddell Sea, Antarctica (69°46'S, 11°00'E). **SP? (od)**: 2001/129; **PP**: 2001/18. **Remarks**: Slide bears the general note "Typ" (type) and one big circle, but since further species are included, the status remains to be clarified.

foissneri Loxocephalus DRAGESCO & DRAGESCO- KERNÉIS, 1991 – Europ. J. Protistol. **26**: 225. **OT**: Polysaprobic sands of small waterpools in the process of evaporation along Lake Tanganyika, Burundi (3°19'S, 29°19'E). 3 **SP (sd)**: 2002/883 (dry silver nitrate method); 2003/123 (wet silver nitrate method); 2003/124. **Remarks**: "Typification" not mentioned in the original paper; but labels refer to this paper; different preparation methods, thus symphoronts.

foissneri Semiplatyophrya WILBERT & KAHAN, 1986 – Arch. Protistenk. **131**: 130. **OT**: Strongly saline soil covered with halophytes; Sinai coast on the Gulf of Akaba, 10 km S Eilat, Israel (29°33'N, 34°57'E). 2 **SP (sd)**: 1993/24, 1993/23. **Remarks**: "Typification" not mentioned in the original paper, but slides labelled and deposited later. Nucleospecies (Tab. 6).

foliosus Cranotheridium (FOISSNER, 1983) WIRNSBERGER, FOISSNER & ADAM, 1984 – Arch. Protistenk. **128**: 308. **OT**: Edge of a pasture pool; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **NP? (sd)**: 1986/16. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "holotype". Protonym: *Pseudoprorodon f.* FOISSNER, 1983 – Annln naturh. Mus. Wien **84B**: 59 (aphory). Since the genus has neuter gender, the species name has to be C. *foliosum* (cp. AESCHT 2001).

formisanoi Colpoda FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 905. **OT**: Bark of a *Colophospermum mopane* tree; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/366; 3 **PP**: 2002/365, 2002/367 2002/368.

franzi Gonostomum FOISSNER, 1982 – Arch. Protistenk. **126**: 74. **OT**: Soil of an alpine pasture; Guttal at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°10'N, 12°49'E). **PP? (sd)**: 1982/18. **Remarks**: "Typification" not mentioned in paper, but three slides designated: One from the type locality is ambiguously labelled as "paratype", since no specimens marked considered as symphoront. Two slides (inv. no. 1981/10, 1984/6) labelled as "holotype" and "paratype", respectively were collected in Lunz, which is not the type location. Currently *Orthoamphisiella f.* according to EIGNER (1995, Europ. J. Protistol. **31**: 363).

franzi Pseudourostyla FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 194. **OT**: Soil; Santo Vicente, Cap Verde Islands, Atlantic Ocean (about 17°N, 25°W). **HP** (unspecific **od** on page 190): 1988/135; 2 **PP**: 1988/136, 1988/137.

fraterculum Protospathidium XU & FOISSNER, 2005 – J. Eukaryot. Microbiol. **52**: 299. **OT**: Dry bed soil; Mlambane River in the Kruger National Park, Republic of South Africa (25°50'S, 31°40'E). **HP (od)**: 2007/143; **PP**: 2007/139, 2007/144, 2007/140, 2007/141, 2007/142 (labelled as *P. f. f.*). **Remarks**: Replacement name for *P. serpens* sensu FOISSNER (1996, Acta Protozool. **35**: 106).

frigida Frontonia PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 79. **OT**: Multiyear sea ice; Weddell Sea, Antarctica (70°21'S, 8°53'W). **SP? (od)**: 2001/141; **PP**: 2001/145. **Remarks**: Slide bears the general note "Typ" (type) and one big circle, but since further species are included, the status remains to be clarified.

fuliginosus Stentor FORBES, 1891 – FOISSNER & WÖLFL (1994) J. Plankton Res. **16**: 272. **OT**: Pelagial; Chiemsee, Bavaria, Germany (47°51'N, 12°25'E). 3 **NP? (sd)**: 2000/77, 2000/78, 2000/79. **Remarks**: "Typification" not mentioned in the original paper. Protonym, trinominal: *S. igneus f.* FORBES, 1891 – Bull. US Fish Comm. **11**: figs. 28, 29.

furcata Urotricha SCHEWIAKOFF, 1892 [Verh naturw.-med. Ver. Heidelberg (N.S.) **4**: 553] – FOISSNER & O'DONOGHUE (1990) Invertebr. Taxon. **3**: 663. **OT**: Small pond in the metropolitan area of Perth, West Australia (31°57'S, 115°58'E). 2 **NP (od)**: 1988/180, 1988/181. **Remarks**: "Typification" only generally mentioned on page 662.

fusioplites Edaphospathula (FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005) FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 60. **OT**: *Pinus nigra* forest soil; Stampftal near Vienna, Austria (47°53'N, 16°02'E). **PP (od)**: 2007/109. **Remarks**: Protonym: *Protospathidium f.* FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 671, which already announced the "type material" deposited and labelled however, by the recombining authors. Holophoront not yet deposited.

G

gargantua Didinium MEUNIER, 1910 [Microplankton des Mers de Barents et de Kara] – PETZ, SONG & WILBERT (1995) Stapfia **40**: 21. **OT**: Endopagial of pancake and multicear sea ice and pelagial; Weddel Sea, Antarctica (between 69°26'–70°22'S and 07°19'–9°00'W). **NP (od** without number): 2001/136.

gasterosteus Enchelys KAHL, 1926 [Arch. Protistenk. **55**: 261] – FOISSNER (1984) Stapfia **12**: 35. **OT**: Infusion with colonies of *Ophryidum versatile*; Lunzer See, Lower Austria (47°51'N, 15°3'E). **NP? (sd)**: 1984/21. **Remarks**: Neotypification not mentioned in paper (see page 8), but three slides designated, although mislabelled as "paratypes". Two of these slides indicated (inv. no. 1984/19 [wet silver nitrate method], 1984/20) are from Salzburg, thus vouchers.

gellerti Perisincirra FOISSNER, 1982 – Arch. Protistenk. **126**: 90. **OT**: Soil of an alpine mat near the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (about 2310 m altitude, 47°06'N, 13°07'E). **HP (sd)**: 1981/91. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Hemisincirra g.* according to FOISSNER (1984, Stapfia **12**: 119) and subspecies rank according to FOISSNER (2000, Europ. J. Protistol. **36**: 278).

gellerti verrucosa Hemisincirra FOISSNER & SCHADE in FOISSNER, 2000 – Europ. J. Protistol. **36**: 278. **OT**: Coniferous forest soil; Tenerife, Canary Islands, Spain (28°N, 17°W). **HP (od)**: 2000/80 (Fig. 31); 2 **PP**: 2000/81, 2000/82. **Remarks**: An unmentioned "paratype" is also included in the first slide (Fig. 31).

georgiana Obertrumia (DRAGESCO, 1972) FOISSNER & ADAM, 1981 – Zool. Anz. **207**: 308. **OT**: Plankton and detritus; Obertrumer-See, Salzburg, Austria (47°58'N, 13°6'E). 2 **NP? (sd)**: 1981/50, 1981/51 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "genotypes". Protonym: *Nassula g.* DRAGESCO, 1972 – AnnlsFac. Sci. Univ. féd. Cameroun **9**: 96. Nucleospecies of *Obertrumia* FOISSNER & ADAM, 1981 (Tab. 6).

gibbus Metopus KAHL, 1927 [Arch. Protistenk. **57**: 146] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 875. **OT**: Soil of a bank of a stream flowing into a reservoir near the village of Ajaccio, Corsica, France (41°55'N, 8°44'E). **NP (od)**: 2002/641.

gigantea Urosoma (HORVÁTH, 1933) KAHL, 1935 – BERGER & FOISSNER (1987) Zool. Jb. Syst. **114**: 233. **OT**: Soil of a saline grassland with halophile plants near the Neusiedlersee, a soda lake in the "hell" region near Illmitz, Burgenland, Austria (47°45'N, 16°49'E). 5 **NP? (sd)**: 1986/90, 1986/91, 1986/92, 1986/93, 1986/94. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Oxytricha g.* HORVÁTH, 1933 – Arch.

Protistenk. **80**: 298. Since the genus has neuter gender, the species name has to be corrected to *Urosoma giganteum* (cp. AESCHT 2001).

gigas Paraclathrostoma DRAGESCO, 1996 – Cah. Biol. mar. **37**: 270. **OT**: Marine sand; Corniche in Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 4 **SP? (od)**: 1997/3 (two marks), 1997/4 (one mark), 2002/869 (4 marks), 2002/870 (3 marks). **Remarks**: A "holo- and paratype" is announced in the paper, but two more slides referring to this paper were deposited years later. Exact site not specified.

gigas Trachelolophos FOISSNER & DRAGESCO, 1996 – J. Eukaryot. Microbiol. **43**: 15. **OT**: Marine sand; French Atlantic coast at Roscoff, France (48°44'N, 3°59'W). **HP (od)**: 1998/26; **PP**: 1998/27. **Remarks**: One mark on each of the untypified slides, thus designation according to paper. Due to later deposition other inventory numbers as stated in the paper, viz. 1995/9, 1995/10. Nucleospecies (Tab. 6).

glaciale Strombidium PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 119. **OT**: Multiyear sea ice; Weddell Sea, Antarctica (70°21'S, 8°53'W). **SP? (od)**: 2001/135; **PP**: 2001/139. **Remarks**: Slide bears the general note "Typ" (type), one big circle and one mark, but since further species are included, the status remains to be clarified.

glacialis Codonellopsis (LAACKMANN, 1907) KOFOID & CAMPBELL, 1929 – PETZ, SONG & WILBERT (1995) Stapfia **40**: 144. **OT**: Pelagial; Weddel Sea, Antarctica (between 68°00'–71°16'S and 4°10'–12°14'W). **NP (od** without number): 2001/95. **Remarks**: Protonym: *Codonella g.* LAACKMANN, 1907 – Deutsche Südpolarexpedition 1901-1903: **12**: 239.

glacicolum Rimostrombidium PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 141. **OT**: Multiyear sea ice; Weddell Sea, Antarctica (70°21'S, 8° 53'W). **SP? (od)**: 2001/130; **PP**: 2001/135. **Remarks**: Slide bears the general note "Typ" (type) and one big circle, but since further species are included, the status remains to be clarified.

glatzeli Erimophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 791. **OT**: Humous sand under *Acacia erioloba*; Southern Namib Desert, centre of Sossus Vlei, Namibia (24°50'S, 15°20'E). **HP (od)**: 2002/246; 2 **PP**: 2002/247, 2002/248. **Remarks**: Nucleospecies (Tab. 6).

goertzi Hemiurosoma FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 843. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/102; 4 **PP**: 2002/103, 2002/104, 2002/105, 2002/106.

goiseri Rigidothrix FOISSNER & STOECK, 2006 – Europ. J. Protistol. **42**: 251. **OT**: Floodplain soil; river Niger near to the town of Timbuktu, Republic of Mali, West Africa (16°30'N, 3°W). **HP (od)**: 2007/645. 6 **PP**: 2007/646, 2007/647, 2007/648, 2007/649, 2007/652, 2007/654. **Remarks**: Three of the "paratypes" include onotogenesis. Simultaneously, nucleospecies and nucleogenus (Tab. 6, 7).

gouraudi Odontochlamys CERTES, 1891 [Mém. Soc. zool. Fr. **4**: 538] – FOISSNER (1988) Hydrobiologia **162**: 34. **OT**: Soil of a mixed forest (Asperulo-Fagetum); near village of Baumgarten, Lower Austria (48°22'N, 15°34'E). 3 **NP? (sd)**: 1981/39, 1988/128; 1981/40 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in the original paper, but slides designated, although the first and third mislabelled as "paratypes". Same locality according to slide. Nucleospecies (Tab. 6).

gracilis Dileptus KAHL, 1931 [Tierwelt Dtl. **21**: 209] – FOISSNER (1989 [for year 1987]) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 182. **OT**: Moss; Schönramer Filz near Freilassing, Bavaria, Germany (47°51'N, 12°59'E). 2 **NP (od)**: 1988/98, 1988/99. **Remarks**: One slide mislabelled as "paratype" (inv. no. 1984/71) from Lower Austria probably refers to an ecological paper. Currently *Pseudomonilicaryon gracile* (corr. because of neuter gender) and nucleospecies of the latter genus according to FOISSNER (1987, Limnologica (Berlin) **27**: 196; Tab. 6).

"*gracilis Edaphospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 88. **OT**: Artificial (?) soil from lawn of a hotel; village of Sharm el Sheik, Sinai, Egypt (about 27°N, 34°E). **HP (od)**: 2007/113; **PP**: 2007/113, 2007/114, 2007/115. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

gracilis Holophrya (PENARD, 1922) KAHL, 1930 – FOISSNER (1984) Stapfia **12**: 16. **OT**: Cyanophyte bloom (*Spirulina jenneri*) in a lake of bathing; Uttendorf, Zell am See, Salzburg, Austria (47°17'N, 12°34'E). 3 **NP? (sd)**: 1984/1; 1984/2 (dry silver nitrate method); 1984/3 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Protonym: *Urotricha gracilis* PENARD, 1922 – Études Infusoires: 17. Currently *Apsiktrata g.*; nucleospecies of the latter genus (Tab. 6), which is the nucleogenus of Apsiktratidae FOISSNER, BERGER & KOHMANN, 1994 (Tab. 7).

gracilis Obertrumia FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 200. **OT**: Pasture pool; Koppler Moor near Salzburg, Salzburg, Austria (47°48'N, 13°10'E). 3 **SP (od)**: 1988/22, 1988/23 (wet silver nitrate method); 1988/24. **Remarks**: One "holotype" and one "paratype" (protargol impregnation) indicated, but all slides labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

gracilis Perisincirra FOISSNER, 1982 – Arch. Protistenk. **126**: 95. **OT**: Soil; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **HP (sd)**: 1981/87. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Caudiholosticha g.* according to BERGER (2006, Monogr. Biologicae **85**: 266).

granata Nassula FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 427. **OT**: Highly saline soil; Etosha National Park, Okerfontein water-hole, Namibia (18°45'S, 16°45'E). **HP (od)**: 2002/70; 3 **PP**: 2002/31, 2002/71, 2002/72.

granulatum Epicarchesium (KELLICOTT, 1887) JANKOWSKI, 1985 – LEITNER & FOISSNER (1997) Europ. J. Protistol. **33**: 14. **OT**: Plant B of a two stage activated sludge plant at Siggerwiesen, Salzburg, Austria (47°51'N, 13°0'E). 4 **NP (od)**: 1998/139, 1998/140 (two dry silver nitrate method); 1998/141, 1998/142. **Remarks**: The latter two of the four "neotypes" announced according to publication are labelled as vouchers. Protonym: *Carchesium g.* KELLICOTT, 1887 – The microscope **7**. Nucleospecies of *Epicarchesium* JANKOWSKI, 1985 (Tab. 6).

granulifera Bakuella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 561. **OT**: Sieved litter from river bank; Bukaos, about 80 km north of the town of Keetmanshoop, Namibia (25°40'S, 18°10'E). **HP (od)**: 2002/459; 6 **PP**: 2002/460, 2002/461, 2002/462, 2002/463, 2002/464, 2002/465. **Remarks**: Possibly also classified in subgenus *Bakuella* (cp. BERGER 2006, Monogr. Biologicae **85**: 569).

granulifera Lacrymaria FOISSNER, 1997 – Limnologica (Berlin) **27**: 192. **OT**: Amper river; near town of Fürstenfeldbruck, Bavaria, Germany (48°10'N, 11°15'E). **HP (od)**: 1998/59; 2 **PP**: 1998/60, 1998/61.

granulifera Lamtostyla FOISSNER, 1997 – Biol. Fertil. Soils **25**: 332. **OT**: Field (Mahada) soil; farm of Don Pedro Cortez; village of El Sapo, about 50 km N of Puerto Ayacucho, Venezuela (about 5°N, 68°W). **HP** (unspecific **od** on page 319): 1998/116; 2 **PP**: 1998/117, 1998/118.

granulifera quadricirrata Oxytricha BLATTERER & FOISSNER 1988 – Stapfia **17**: 63. **OT**: Soil of a sand hill; 99 Miles Desert, north of Lake Alexandrina near Adelaide, Australia (about 35°S, 139°E). **HP** (unspecific **od** on page 4): 1989/77; 2 **PP**: 1989/49, 1989/78.

granulifera Tachysoma BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 228. **OT**: Arable soil near Vienna, Austria (48°11'N, 16°17'E). **HP** (unspecific **od** on page 195): 1986/86; **PP**: 1986/87. **Remarks**: Since the genus has neuter gender, the species name was corrected to *T. granuliferum* by FOISSNER & FOISSNER I. (1988, Catalogue Faunae Austria **Ic**: 92).

granulifera Urosomoida FOISSNER, 1996 – Acta Protozool. **35**: 115. **OT**: *Drepanocladus uncinatus* moss from Livingstone Island; South Shetland Islands, Antarctica (62°38'S, 61°04'W). **HP** (unspecific **od** on page 97): 1997/46; **PP**: 1997/47.

granuliferum Strongylidium FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 190. **OT**: Soil of a grassland near Garajan Kap; Madeira, Portugal (32°50'N, 17°0'W). **HP** (unspecific **od** on page 190): 1988/130. **Remarks**: Currently *Hemiamphisiella granulifera* according to FOISSNER (1988, Stapfia **17**: 122).

granulosum Condylostoma BULLINGTON, 1940 [Pap. Tortugas Lab. **32**] – PETZ, SONG & WILBERT (1995) Stapfia **40**: 103. **OT**: Endopagial of pancake, nilas and mainly multiyear sea ice; Weddell Sea, Antarctica (68°38'–71°00'S, 6°05'–11°54'W). **NP (od** without number): 2001/148.

grelli Anictostoma FOISSNER, 1993 – Protozoenfauna **4/1**: 313. **OT**: Mosses on trees near the Lady Barron Falls in the Mt. Fields National Park, Tansania, Australia (45°S, 146°E). 2 **SP (sd)**: 1998/90; 1998/92 (wet silver nitrate method); 2 **PP**: 1998/91; 1998/93 (wet silver nitrate method; labelled as *Corallocolpoda g.*). **Remarks**: "Typification" not mentioned in the original paper, but two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies of *Anictostoma* FOISSNER, 1993 (Tab. 6). Currently *Corallocolpoda g.* according to FOISSNER (1993, Protozoenfauna **4/1**: 313).

grelli Orthoamphisiella EIGNER & FOISSNER, 1993 – Arch. Protistenk **143**: 342. **OT**: Moss and soil from a river bank; Gough Island, Transvaal Bay, South Africa (40°20'S, 10°00'W). **HP (od)**: 1993/111 (one mark). **Remarks**: Announced "paratype" not labelled, but seven further marked slides, five of these with specimens in divisional morphogenesis.

grisea Tracheloraphis (KAHL, 1933) DRAGESCO, 1960 – DRAGESCO (1999) Annls Sci. nat. **1**: 20. **OT**: Marine sand; Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2 **NP (od)**: 1998/28, 1998/29 (mislabelled as *T. griseus*). **Remarks**: Unspecifically designated as "type" specimens, but in fact neophoronts; labels unspecifically refer to this paper. Location according to paper, which inadverently states an inventory number 1996/27 instead of 29. Protonym: *Trachelocerca g.* KAHL, 1933 – Tierwelt Nord- und Ostsee **II**. **c3**: 56.

gyrans Disematostoma DRAGESCO, 1972 – AnnlsFac. Sci. Univ. féd. Cameroun **9**: 112. **OT**: Unspecified; Cotonou, Benin (6°15'N, 2°20'E). **HP (sd)**: 2002/910 (1968, dry silver nitrate method). **Remarks**: "Typification" not mentioned, but label refer to this paper; one mark. A second slide (2006/44) dated 1979 possibly refers to DRAGESCO & DRAGESCO-KERNÉIS (1986, Faune tropicale **26**: 315).

H

haematoplasma Oxytricha BLATTERER & FOISSNER, 1990 – Arch. Protistenk. **138**: 106. **OT**: River Amper, about 1 km beneath the Ammersee, Bayern, Germany (48°00'N, 11°07'E). **HP (od)**: 1993/47; 2 **PP**: 1993/48, 1993/49. **Remarks**: Currently *Rubrioxytricha h.* and nucleospecies of the latter genus according to BERGER (1999, Monogr. Biologicae **78**: 481; Tab. 6).

halophila Apourosomoida FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 761. **OT**: Highly saline, sandy soil; Unjab river bed, northern Namib Desert, Namibia (20°10'S, 13°10'E). **HP (od)**: 2002/329; 2 **PP**: 2002/330, 2002/331. **Remarks**: Nucleospecies (Tab. 6).

halophila Lamtostyla FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 706. **OT**: Highly saline soil; surroundings of the town of Maltahöhe, Namibia (24°55'S, 16°55'E). **HP (od)**: 2002/214; **PP**: 2002/215.

halophila Parakahliella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 598. **OT**: Highly saline coast soil; Great Salt Lake, near the town of Brigham, Utah, USA (41°30'N, 112°W). **HP (od)**: 2002/665; 2 **PP**: 2002/666, 2002/667.

halophila Podophrya KAHL, 1934 [Tierwelt Nord- und Ostsee **II**. **c5**] – BLATTERER & FOISSNER (1988) Stapfia **17**: 26. **OT**: Sand hill; 99 Miles Desert, north of Lake Alexandrina near Adelaide, Australia (about 35°S, 139°E). **NP? (sd)**: 1989/50. **Remarks**: Neotypification not mentioned in paper, but slides labelled.

halophilus Plagiocampides FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 548. **OT**: Cyanobacterial crusts; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/210 (wet silver nitrate method); 2 **PP**: 2002/211 (wet silver nitrate method; 2002/212. **Remarks**: One further slide (inv. no. 2002/213) labelled as "paratype", represents a voucher according to table 1 in their paper. Nucleospecies (Tab. 6).

hamatus Tracheloraphis WRIGHT, 1982 – DRAGESCO (2002) Linzer biol. Beitr. **34**: 1559. **OT**: Marine sand; Roscoff,

Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/819, 2002/820. **Remarks**: Since the genus has feminine gender, the species name has to be *T. hamata* (cp. FOISSNER & DRAGESCO 1996, Arch. Protistenk. **147**: 85).

harbinensis Stylonychia SHI & AMMERMANN, 2004 – Protistology **3**: 219. **OT**: Song-Hua River in the northern part of Harbin, China (45°70'N, 126°80'E). **HP** (**od**): 2003/45 (Fig. 30). **Remarks**: "Paratype" slides are deposited at the Laboratory of Protozoology of the Harbin Normal University (Harbin 150080, China) and at the "Zool. Schausammlung" of the University of Tübingen, Sigwartstr. 3, D-72076 Tübingen, Germany.

hasei Metopus SONDHEIM, 1929 [Abh. Senckenberg. Naturf. Ges. **41**: 301] – FOISSNER (1981) Protistologica **17**: 32. **OT**: Soil of an alpine pasture; Hochmais at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°7'N, 12°48'E). **NP? (sd)**: 1981/75. **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". Location according to FOISSNER (1981: 18).

hawaiiensis Bilamellophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 183. **OT**: Arable field soil; between the village of Honomu and the Akaka Falls, Big Island, Hawaii, USA (19°50'N, 155°10'W). **HP** (**od**): 2002/674; 2 **PP**: 2002/675, 2002/676.

hawaiiensis Bryometopus FOISSNER, 1994 – Annln naturh. Mus. Wien, Ser. B Bot. Zool. **96B**: 20. **OT**: Grassland soil near the entrance to the Sandalwood trail in the Volcano National Park, Big Island, Hawaiian Archipelago, USA (19°25'N, 155°20'W). **HP** (**od**): 1997/42. **Remarks**: One "paratype" has been deposited in the Natural History Museum Vienna, but non as announced in Linz.

henneguyi Colpoda FABRE-DOMERGUE, 1889 [Annls Microgr. **1**: 351] – FOISSNER (1980) Zool. Jb. Syst. **107**: 424. **OT**: Unknown; Lower Austria (label). **NP? (sd)**: 1981/27 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". No precise site given, neither in the original paper nor the given reference. The original locus classicus is an infusion of dried soil and leaves in the garden of the "Collège de France" in Paris.

herzogi Gigantothrix FOISSNER, 1999 – Biodiversity and Conservation **8**: 368. **OT**: Soil of the forest surrounding the Sheldrick waterfalls in the Shimba Hills Nature Reserve, Kenya (4°13'S, 39°25'E). **HP** (**od**): 1999/29; **PP**: 1999/30. **Remarks**: Nucleospecies (Tab. 6).

heterotricha Gellertia (DRAGESCO, 1960) DRAGESCO, 1999 – Stapfia **66**: 36. **OT**: Marine sand; Sète, Mediterranean coast, France (43°23'N, 3°42'E). 4 **NP?** (unspecific **od** on page 7): 1999/159, 1999/160, 1999/161 (note: "First slide of Leeuwenhoeck Laboratory"), 1999/162. **Remarks**: Site according to slides. Sampling years 1994 and 1997, respectively. Labels undesignated, thus "typification" according to paper. Protonym: *Geleia h.* DRAGESCO, 1960 – Trav. Stn. biol. Roscoff (N. S.) **12**: 239. Nucleospecies of *Gellertia* DRAGESCO, 1999 (Tab. 6).

hirtus Coleps (MÜLLER, 1786) NITSCH, 1827 – FOISSNER (1984) Stapfia **12**: 22. **OT**: Plankton and mud of a small pond; Peterweiher in the urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP? (sd)**: 1984/12, 1984/13 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Protonym: *Cercaria hirta* MÜLLER, 1786 – Animalc. infus.: 128. Nucleospecies of *Coleps* NITSCH, 1827 (Tab. 6), which is the nucleogenus of Colepidae EHRENBERG, 1838 (Tab. 7).

histrio Histriculus (MÜLLER, 1773) CORLISS, 1960 – FOISSNER & GSCHWIND (1998) Ber. Nat.-Med. Ver. Salzburg **12**: 35. **OT**: Small lake (Teufelssee) in the surroundings of Berlin, Germany (52°31'N, 13°24'E). 4 **NP** (**od**): 1999/61, 1999/62, 1999/63, 1999/64. **Remarks**: Protonym: *Paramaecium h.* MÜLLER, 1773 – Vermium Terrestrium et Fluviatilium: 55.

histriomuscorum Sterkiella (FOISSNER, BLATTERER, BERGER & KOHMANN, 1991) FOISSNER, BLATTERER, BERGER & KOHMANN, 1991 – FOISSNER & BERGER (1999) Acta Protozool. **38**: 234. **OT**: Jordan River; Indiana, USA (39°23'N, 86°55'W). 2 **NP** (**od**): 1999/109, 1999/110. **Remarks**: On page 235 the authors "suggest fixing the nomen nudum species *Oxytricha trifallax* as neotype of *Histrio muscorum* KAHL, 1932 – Tierwelt Dtl. **25**: 617. The complicated nomenclature is unravelled by FOISSNER et al. (1991), BERGER (1999, Monogr. Biologicae **78**: 683) and particularly FOISSNER & BERGER (1999, Acta Protozool. **38**: 235).

horribile Colpodidium (*Colpodidium*) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 474. **OT**: Highly saline soil from littoral of Lake Nakuru, Kenya (0°17'N, 36°04'E). **HP** (**od**): 2002/532; 2 **PP**: 2002/533, 2002/534.

hortualis Neogeneia EIGNER, 1995 – Europ. J. Protistol. **31**: 349. **OT**: Compost heap in kitchen garden; village of Schrötten near Deutsch Goritz, Styria, Austria (46°47'N, 15°49'E). **HA** (**od**): 1994/86. **Remarks**: According to this paper the slide includes several "paratypes", which are unmarked, and specimens in divisional morphogenesis. Nucleospecies (Tab. 6).

hortualis Parentocirrus VOSS, 1997 – Europ. J. Protistol. **33**: 31. **OT**: In a bird bath; Am Dornbusch 42, village of Feldhausen, Bottrop, Nordrhein-Westfalen, Germany (51°31'N, 6°55'E). 3 **SP? (od)**: 1996/27, 1996/28, 1996/29. **Remarks**: Four specimens marked as "holotype" on two slides violating Art. 73.2 (ICZN 1999), in addition specimens in divisional morphogenesis are announced in the paper. Thus the three slides (all including marks) may be considered as hapantophoronts (ICZN 1999 Art. 73.3). Nucleospecies (Tab. 6).

hovassei Sathrophilus GROLIERE, 1975 [Ann. Sta. Biol. Besse-en-Chandesse **9**] – FOISSNER, ADAM & FOISSNER I. (1982) Zool. Jb. Syst. **109**: 451. **OT**: Pond in the garden of the Zoological Institute; Karlsruhe, Germany (49°0'N, 8°30'E). 2 **NP? (sd)**: 1981/58 (wet silver nitrate method), 1981/59. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes".

humicola longisetum Tachysoma FOISSNER, 1998 – Europ. J. Protistol. **34**: 226. **OT**: Soil from Shetani volcano area; Tsavo National Park, Kenya (about 2°55'S, 38°0'E). **HP** (unspecific **od** on page 196): 1997/109 (six marks); **PP**: 1997/110 (three six marks). **Remarks**: Slides incorrectly labelled as *T. h. longisetae* and in addition the first as "holotype" and the latter slide as "syntype".

humicola Tachysoma GELLÉRT, 1957 [Annls Inst. Biol. pervest hung. **24**: 20.] – FOISSNER (1984) Stapfia **12**: 121. **OT**: Soil at the edge of a small salt lake in the so-called "hell"; Seewinkel, Burgenland, Austria (47°48'N, 16°49'E). **NP? (sd)**: 1984/97. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype". Currently subspecies rank (see above).

humile Rimostrombidium (PENARD, 1922) PETZ & FOISSNER, 1992 – KRAINER (1995) Lauterbornia **21**: 40, 58. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). 2 **NP** (unspecific **od** on page 40): 1992/32, 1992/33 (as *Strobilidium h.*). **Remarks**: Redescribed on the basis of unpublished data of KRAINER (1988, doctoral thesis Univ. Graz: 162) by FOISSNER, BLATTERER, BERGER & KOHMANN (1991, Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/91**: 159). "Typification" and additional observations mentioned in KRAINER (1995, Lauterbornia **21**: 40, 58). Protonym: *Strobilidium h.* PENARD, 1922 – Études Infusoires: 218.

hyalina Sagittaria FOISSNER, CZAPIK & WIACKOWSKI, 1981 [Arch. Protistenk. **124**: 362] – FOISSNER (1987) Zool. Beitr. N. F. **31**: 244. **OT**: Strongly haline soil; Bay of Nauplion, Peleponnesus, Greece (37°34'N, 22°48'E). 2 **NP? (sd)**: 1988/70, 1988/71 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides labelled.

hyalina Tachysoma BERGER, FOISSNER & ADAM, 1984 – Zool. Jb. Syst. **111**: 359. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel, Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). **HP (od)**: 1982/60. **Remarks**: "Paratype" deposition indicated, but not performed. Currently *Lamtostyla h.* according to BERGER & FOISSNER (1987, Zool. Jb. Syst. **114**: 216).

hyalinum Blepharisma PERTY, 1852 [Kenntn. klein. Lebensformen: 144] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 226. **OT**: Soils along the Großglockner-Hochalpenstraße, Carinthia and Salzburg, Austria. 2 **NP (od)**: 1988/46, 1988/47. **Remarks**: No specific site given.

hyalinum Ophrydium WRZESNIOWSKI, 1877 [Z. wiss. Zool. **29**] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 222. **OT**: Puddle; near Moosstraße, urban area of Salzburg, Austria (47°48'N, 13°02'E). 7 **NP (od)**: 1988/39, 1988/40, 1988/41, 1988/42 (wet silver nitrate method); 1988/43, 1988/44, 1988/45 (three dry silver nitrate method). **Remarks**: Two slides indicated. Location according to note on page 174.

I

illuvialis Amphisiellides EIGNER & FOISSNER, 1994 – J. Eukaryot. Microbiol. **41**: 243. **OT**: Litter from a disused pigpen; village of Schroetten, Deutsch Goritz, Austria (320 m altitude, 46°47'N, 15°49'E). **HP (od)**: 1993/103 (one mark), **PP**: 1993/44 (unmarked). **Remarks**: Due to earlier deposition other inventory numbers as stated in the paper, viz. 1994/10, 1994/11.

incaudata Trachelocerca KAHL, 1933 [Tierwelt Nord- und Ostsee **II**. **c3**: 56] – DRAGESCO (2002) Linzer biol. Beitr. **34**: 1550. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/809, 2002/810.

incisa Euplotopsis FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 868. **OT**: Slightly saline coastal soil; Dugi Otok, a small island at the Adriatic sea coast, Croatia (44°00'N, 15°00'E). 2 **SP (od)**: 2002/651 (wet silver nitrate method), 2002/652; **PP**: 2002/653, 2007/690. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

inermis Apertospathula FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 318. **OT**: Sand dune; near the town of St. Anthony, Idaho, USA (43°N, 112°W). **HP (od)**: 2002/659; 2 **PP**: 2002/660, 2002/661. **Remarks**: Nucleospecies (Tab. 6); *Apertospathula* is the nucleogenus of Apertospathulidae FOISSNER, XU & KREUTZ, 2005 (Tab. 7).

"*inermis Edaphospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 76. **OT**: Grassland soil; surroundings of the Paiku-Tso lake, South Tibet, China (about 4700 m altitude, 28°45'N, 85°45'E). **HP (od)**: 2007/110. 3 **PP**: 2007/110, 2007/111, 2007/112. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

inflata Colpoda (STOKES, 1884) KAHL, 1931 – FOISSNER (1980) Zool. Jb. Syst. **107**: 419. **OT**: Unknown; Lower Austria (label). **NP? (sd)**: 1981/28 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". No precise site given, neither in the original paper nor the given reference. The original locus classicus is a water container used to grow Chines narcissuses in New Jersey, USA, suspecting that the species might have been imported from China with the bulbs (cf. FOISSNER 1993, Protozoenfauna **4/1**: 144). Protonym: *Tillina i.* STOKES, 1884 – Am. Nat. **18**: 138.

infravacuolatus Pseudohaplocaulus FOISSNER & BROZEK, 1996 – Int. Revue ges. Hydrobiol. **81**: 330. **OT**: Attached to planktonic colonies of *Anabaena* sp.; Lake Grabensee, Salzburg, Austria (48°0'N, 13°5'E). 2 **SP (od)**: 1998/121 (dry silver nitrate method), 1998/123; 2 **PP**: 1998/122, 1998/124 (dry silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Moreover "syntypes" instead of "paratypes" and concerning coordinates W instead of E are mentioned on page 332.

inquieta Steinia (STOKES, 1887) DIESING, 1866 – FOISSNER (1984) Stapfia **12**: 115. **OT**: Flood plain soil, dominated by *Phalaris arundinacea* and *Phragmites australis*; Vogelsang near the village of Grafenwörth, Tullnerfeld, Lower Austria (48°24'N, 15°47'E). 2 **NP? (sd)**: 1984/91, 1984/92. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes". Protonym: *Histrio inquietus* STOKES, 1887 – Ann. Mag. nat. Hist. **20**: 113. BERGER & FOISSNER (1987, Zool. Jb. Syst. 114: 227f.) introduced the name *Steinia primicirrata* for the misidentified species of FOISSNER (1984). FOISSNER (1989, Sber. Österr. Akad. Wiss., Math.-Naturwiss. **196**: 239) transferred it to *Cyrtohymena* and a subgeneric status may

be supposed (Tab. 5) according to FOISSNER (2004, Denisia **13**: 371), although not formally transferred. BERGER (1999: 300) mentiones "1 slide" deposited.

interrupta Nudiamphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 694. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/370; 5 **PP**: 2002/343, 2002/351, 2002/371, 2002/372, 2002/373. **Remarks**: Nucleospecies (Tab. 6).

inversus Metopus (JANKOWSKI, 1964) FOISSNER & AGATHA, 1999 – J. Eukaryot. Microbiol. **46**: 177. **OT**: Soil from the margin of a pool communicating with a nearby stream; Aubschlucht, Bullsport, Namibia (24°S, 16°20'E). 6 **NP (od)**: 2002/436, 2002/437, 2002/438, 2002/439, 2002/440, 2002/444. **Remarks**: "Type" material also mentioned in FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 40). Protonym: *Brachonella inversa* JANKOWSKI, 1964 – Zool. Zh. **43**.

islandica Lamtostyla BERGER & FOISSNER, 1988 – Zool. Anz. **220**: 122. **OT**: Soil of a heath with dwarf shrubs; Gooa Foss, Bardårdalur, North-Iceland (63°48'N, 18°37'W). **HP (od)**: 1988/53; **PP**: 1988/56. **Remarks**: Replacement name for *Tachysoma perisincirra* HEMBERGER, 1985 (pro parte).

J

jankowskii Philina FOISSNER, 1984 – Stapfia **12**: 64. **OT**: Sapropel of River Drau near barrage Amlach; Lienz, Eastern Tyrol, Austria (46°49'N, 12°45'E). 2 **SP** (unspecific **od** on page 8): 1984/49; 1984/50 (wet silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

japonicum Arcuospathidium FOISSNER, 1988 – Stapfia **17**: 102. **OT**: Soil of a deciduous forest; Mt. Kado-yama, Amakusa Islands, Kumamoto Prefecture, Japan (32°48'N, 130°43'E). **HP** (unspecific **od** on page 88): 1989/13; **PP**: 1989/14.

japonicum Pseudomonilicaryon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 378. **OT**: Tree and soil mosses; surroundings of the "Spring of Wisdom", Kyoto, Japan (35°00'N, 135°45'E). **HP (od)**: 2002/682; 4 **PP**: 2002/683, 2002/684, 2002/685, 2002/686.

jesnerae Enchelyotricha FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 186. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/355; 3 **PP**: 2002/345, 2002/352, 2002/359.

K

kahli Obertrumia FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 196. **OT**: Soil of a pine forest; Madeira, Portugal (32°40'N, 16°45'W). **HP (od)**: 1988/25; **PP**: 1988/26 (both wet silver nitrate method).

kahli Stammeridium (WENZEL, 1953) FOISSNER, 1985 – Zool. Anz. **214**: 44. **OT**: Soil; Haitzing-Alm (Rumicetum alpini) on the east slope of Stubnerkogel near Badgastein, Salzburg, Austria (47°5'N, 13°7'E). **NP? (sd)**: 1981/48 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Protonym: *Stammeriella k.* WENZEL, 1953 – Arch. Protistenk. **99**. Nucleospecies of *Stammeridium* WENZEL, 1969 (Tab. 6).

kaneshiroae Corticocolpoda FOISSNER, 1993 – J. Eukaryot. Microbiol. **40**: 764. **OT**: Bark of Ohia trees (*Metrosideros polymorpha*) in the Bird Park of the Volcano National Park, Big Island, Hawaiian Archipelago, USA (19°25'N, 155°20'W). 2 **SP (od)**: 1997/28, 1997/31 (wet silver nitrate method); 2 **PP**: 1997/29, 1997/30 (wet silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6).

karinae Urosoma FOISSNER, 1987 – Jber. Haus der Natur Salzburg **10**: 62. **OT**: Soil of a meadow in front of the Piffmoos; Fuscher Tal, Salzburg, Austria (47°9'N, 12°48'E). **HP (od)**: 1988/114; **PP**: 1988/115. **Remarks**: Labelled and published as *U. karini*, which was nomenclaturally incorrect (cp. FOISSNER 1998, Europ. J. Protistol. **34**: 210).

kirkeniensis Lamtostyla BERGER & FOISSNER, 1988 – Zool. Anz. **220**: 124. **OT**: Tundra soil near the airport of Kirkenes, Norway (69°43'N, 30°3'E). **HP (od)**: 1988/54; **PP**: 1988/55.

kleini Colpidium FOISSNER, 1969 [Acta Protozool. **7**: 19] – GANNER & FOISSNER (1989) Hydrobiologia **182**: 197. **OT**: Macrophyte-based waste water treatment system in Ardenberg, Upper Austria (48°8'N, 12°58'E). 3 **NP (od** without number on page 182): 1989/9, 1989/11 (wet silver nitrate method); 1989/10 (silver carbonate method). **Remarks**: Location according to slides.

kopimorphus Litonotus PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 47. **OT**: Multiyear land-fast sea ice; Weddell Sea, Antarctica (70°31'S, 7°59'W). **SP? (od)**: 2001/54; **PP**: 2001/33. **Remarks**: Slide with three big circles, but since further species are included, the status remains to be clarified.

kryalis Strombidium PETZ, 1994 – Arch. Protistenk. **144**: 186. **OT**: Sea ice; Weddel Sea, Antarctica (69°12'S, 12°14'W). **HP (od)**: 2001/142.

kryophilus Zosterodasys PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 59. **OT**: Pancake sea ice; Weddell Sea, Antarctica (69°26'S, 7°19'W). **SP? (od)**: 2001/150, **PP**: 2001/54. **Remarks**: Slide with one big circle, moreover "cells" are announced in the paper.

kuehnelti Gonostomum FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 263. **OT**: Field soil; Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). **HP (od)**: 1986/48; 2 **PP**: 1986/49, 1986/50. **Remarks**: Only one "paratype" indicated in the paper, but two slides labelled.

L

labiatus Euplotes RUINEN, 1938 [Revta Biol. trop. **9**.] – BLATTERER & FOISSNER (1988) Stapfia **17**: 29. **OT**: Alexandrina Lake (Point Pelican) near Adelaide, Australia (34°47'S, 138°29'E). 2 **NP? (sd)**: 1989/51 (wet silver nitrate method); 1989/52. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Currently *Euplotopsis labiata* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 868).

labiatus Nassulides (KAHL, 1933) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 448. **OT**: Saline grassland soil about 200 m inshore and behind a coastal dune; surroundings town of Armacao de Pera, Algarve coast, Portugal (37°06'N, 8°21'W). 4 **NP** (**od**): 2002/646, 2002/647, 2002/648, 2002/649 (all wet silver nitrate method). **Remarks**: Protonym: *Nassula labiata* KAHL, 1933 – Tierwelt Nord- und Ostsee **II**. **c3**: 66.

lacustris Stenosemella FOISSNER & O'DONOGHUE, 1990 – Invertebr. Taxon. **3**: 685. **OT**: Lake Alexandrina, Murray Mouth Barrages, South Australia (35°26'S, 139°10'E). **PP**: (unspecifically **od** on page 662): 1988/188. **Remarks**: A single "holotype" slide is deposited in AMS.

lagenula Enchelyodon (KAHL, 1930) BLATTERER & FOISSNER, 1988 – Stapfia **17**: 11. **OT**: Bark overgrown with lichens and mosses of a secondary pine forest near Innisfail; Chairns, Australia (17°32'S, 146°2'E). **NP?** (**sd**): 1989/82. **Remarks**: Neotypification not mentioned in paper, but slide designated. Protonym: *Spathidium l.* KAHL, 1930 – Arch. Protistenk. **70**: 388.

lagenula Lacrymaria CLAPARÈDE & LACHMANN, 1859 [Mém. Inst. natn. génev. **6**] – PETZ, SONG & WILBERT (1995) Stapfia **40**: 36. **OT**: Endopagial of pancake and multiyear sea ice; Weddell Sea, Antarctica (69°07'–71°00'S, 7°59'–12°08'W). **NP** (**od** without number): 2001/66.

lagyniforme Spathidium KAHL, 1930 [Tierwelt Dtl. **18**: 155] – FOISSNER (1984) Stapfia **12**: 74. **OT**: Soil of a conventionally farmed field; Bierbaum, Lower Austria (48°23'N, 15°56'E). **NP?** (**sd**): 1984/54. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype". Currently *Semispathidium l.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 327).

"*lajacola Apertospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 359. **OT**: Ephemeral puddles (Lajas) on granite outgrowths; between Agricultural Research Institute and airport Pto. Ayachucho, Venezuela (about 6°N, 75°W). **HP** (**od**): 2007/33. 5 **PP**: 2007/29, 2007/30, 2007/31, 2007/32, 2007/33. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

lamella Litonotus (MÜLLER, 1773) SCHEWIAKOFF, 1886 – FOISSNER & O'DONOGHUE (1990) Invertebr. Taxon. **3**: 672. **OT**: [Probably] standing waters and ponds; metropolitan area of Perth, West Australia (31°57'S, 115°58'E). 2 **NP** (**od**): 1988/191, 1988/192. **Remarks**: "Typification" only generally mentioned on page 662. Precise details of the collection sites were not recorded. Protonym: *Kolpoda lamella* MÜLLER, 1773 – Vermium Terrestrium et Fluviatilium: 56.

lanceolata Oxytricha SHIBUYA, 1930 [J. imp. agric. Exp. Stn Tokyo **1**: 214] – BERGER & FOISSNER (1987) Zool. Jb. Syst. **114**: 219. **OT**: Soil of a pasture near Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). 2 **NP?** (**sd**): 1986/77, 1986/78. **Remarks**: Neotypification not mentioned in paper, but slides labelled.

lanceoplites Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 267. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP** (**od**): 2002/351; 2 **PP**: 2002/342 (Fig. 36 also as *S. lancioplites*), 2002/358.

langae Hackenbergia FOISSNER, 1997 – Limnologica (Berlin) **27**: 230. **OT**: River Illach; Bavaria, Germany (47°43'N, 10°55'E). 3 **SP?** (**od**): 1998/56 (Fig. 10), 1998/57, 1998/58. **Remarks**: Announced as one "holotype" and two "syntype" slides, however, the first slide is labelled as "hologenotype" (10 marks; Fig. 10), the second as "paratype" (six marks), while the third is undesignated with one mark referring to ontogenesis. Thus, the three slides (all including marks) may be considered as hapantophoronts (ICZN 1999 Art. 73.3). Nucleospecies (Tab. 6).

latus Platyophryides (KAHL, 1930) FOISSNER, 1987 – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 977. **OT**: Mixture of plant litter and brownish, highly saline and circumneutral sand; Wadi Ram about 10 km east of Al Aqaba, Jordan (29°30'N, 15°35'E). 4 **NP** (**od**): 2002/586, 2002/587, 2002/588, 2002/589 (all wet silver nitrate method). **Remarks**: Protonym: *Platyophrya lata* KAHL, 1930 – Tierwelt Dtl. **18**: 65. Nucleospecies of *Platyophryides* FOISSNER, 1987 (Tab. 6).

lentus Ascobius HENNEGUY, 1884 [Archs Zool. exp. gén. **2**: 412] – MULISCH, HEEP, STURM & BORCHERDING (1998) Acta Protozool. **37**: 29. **OT**: "Alte Kiesgrube" in the floodplain of the Lower Rhine between the cities Rees and Emmerich, Germany (51°48'N, 6°20'E). 5 **NP** (**od**): 1998/14, 1998/15, 1998/16, 1998/17, 1998/18. **Remarks**: Labels undesignated, but according to paper. Nucleospecies (Tab. 6).

levis Pseudourostyla TAKAHASHI, 1973 [J. Sci. Hiroshima Univ., Ser. B, Div. I. Zool. **24**: 145] – BERGER (2006) Monogr. Biologicae **85**: 778. **OT**: [likely rice-stubble from paddy fields]; Kumano-cho, Aki-gun, Hiroshima Prefecture, Japan (34°19'49"N, 132°34'43"E). 2 **NP** (**od**): 2006/85 ("ontogenesis illustrated"), 2006/86 ("neotype illustrated"). **Remarks**: BERGER (2006: 778) designated the specimen shown in figs. 150h, i as neotype, but two slides were deposited. Coordinates according to the latter publication (page 786).

lingua multistriatum Bryophyllum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 345. **OT**: Mud from granitic rock-pools in a stream; Windhoek, Daan Viljoen Game Park, Namibia (22°35'S, 17°5'E). **HP** (**od**): 2002/34; 7 **PP**: 2002/35, 2002/36, 2002/37, 2002/38, 2002/39, 2002/40, 2002/41. **Remarks**: Currently *Neobryophyllum l. m.* (FOISSNER, AGATHA & BERGER 2002) FOISSNER in FOISSNER & LEI, 2004 (Linzer biol. Beitr. **36**: 162).

lionotiforme Arcuospathidium (KAHL, 1930) FOISSNER, 1984 – Stapfia **12**: 78. **OT**: Soil of a mixed forest (Asperulo-Fagetum); village of Baumgarten, Lower Austria (48°22'N, 15°34'E). 4 **NP?** (**sd**): 1984/58, 1984/57, 1984/59, 1984/60. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides labelled, although incorrectly as "paratype". Protonym: *Spathidium l.* KAHL, 1930 – Arch. Protistenk. **70**: 383. This taxon was lowered to subspecies rank, viz. *Arcuospathidium cultriforme lionotiforme* (cp. FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 300). Considered as misidentification and a junior subjective synonym of *A. c. scalpriforme* according to FOISSNER (2003, Acta Protozool. **42**: 54).

livida Hemisincirra BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 211. **OT**: Litter and upper soil layer of a pasture; between Nauplion and Tripolis, Peleponnesus, Greece (37°34'N, 22°48'E). **HP** (unspecific **od** on page 195): 1986/63; **PP**: 1986/64. **Remarks**: Currently *Terricirra l.* according to BERGER & FOISSNER (1989, Bull. Br. Mus. nat. Hist. (Zool.) **55**: 36).

loeffleri Wolfkosia FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 459. **OT**: Rock-pools at bank; Rio Corobici at the hacienda "La Pacifica" (Centro Ecológico "La Pacífica"), Cañas, Costa Rica (10°28'N, 85°10'W). 2 **SP** (**od**): 2002/757 (dry silver nitrate method), 2002/758 (wet silver nitrate method); 7 **PP**: 2002/617, 2002/618 (both wet silver nitrate method); 2002/619, 2002/759, 2002/760, 2002/761, 2002/762. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6).

longicaudata Condylostoma DRAGESCO, 1996 – Cah. Biol. mar. **37**: 276. **OT**: Marine sand; Corniche in Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 4 **SP?** (**od**): 1997/5 (one mark), 1997/6 (two marks), 2002/867, 2002/868. **Remarks**: A "holo- and paratype" are announced in the paper, but two more slides referring to this paper were deposited years later.

longicirrata Perisincirra FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 632. **OT**: Soil with some litter and roots; University Campus, Abomey-Calavi, Benin (6°27'N, 2°21'E). **HP** (**od**): 2002/548; 2 **PP**: 2002/549, 2002/550.

longicollis Tracheloraphis (DRAGESCO, 1960) FOISSNER & DRAGESCO, 1996 – Arch. Protistenk. **147**: 75. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (**od**): 1998/33, 1998/32. **Remarks**: Unspecifically designated as type specimens, but in fact neophoronts; labels unspecifically refer to this paper. Protonym: *Trachelonema l.* DRAGESCO, 1960 – Trav. Stn. biol. Roscoff (N. S.) **12**: 135.

longinassa Nassula FOISSNER, 1980 [Naturk. Jb. Stadt Linz **25**: 200] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 414. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). 2 **NP** (**od**): 2002/66; 2002/67 (wet silver nitrate method).

longinucleatus Enchelyodon FOISSNER, 1984 – Stapfia **12**: 53. **OT**: Soil of a meadow near Lange Lacke; Seewinkel, Burgenland, Austria (47°43'N, 16°49'E). 2 **SP** (unspecific **od** on page 8): 1984/38; 1984/39 (dry silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

longiseries Amphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 680. **OT**: Sieved litter from bank of river; Bukaos River, about 80 km north of the town of Keetmanshoop, Namibia (25°40'S, 18°10'E). **HP** (**od**): 2002/466; 5 **PP**: 2002/467, 2002/468, 2002/469, 2002/470, 2002/471.

"*longiseta Apertospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 342. **OT**: Soil; Zambezi floodplain about 1.5 km upstream the Victoria Falls, Botswana (18°4'S, 25°50'E). **HP** (**od**): 2007/28. 5 **PP**: 2007/24, 2007/25, 2007/26, 2007/27, 2007/28. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

longitricha Enchelys FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 101. **OT**: Moderately saline and alkaline, dark-red sand mixed with some halophyte litter; surroundings of the village El Haouaria, about 100 m inshore of Cape Bon, Tunisia (36°40'N, 10°40'E). **HP** (**od**): 2002/607; 2 **PP**: 2002/608, 2002/609.

lorjeae Arcuospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 295. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP** (**od**): 2002/354; 6 **PP**: 2002/341, 2002/344, 2002/346, 2002/352, 2002/353, 2002/355.

lucida Naxella (REUTER, 1961) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 445. **OT**: Highly saline soil; Etosha National Park, lookout "Etosha", Namibia (18°50'S, 16°30'E). 4 **NP** (**od**): 2002/31 (mislabelled as "paratype"); 2002/61, 2002/62, 2002/63 (wet silver nitrate method). **Remarks**: Protonym: *Nassula lucida* REUTER, 1961 – Acta zool. fenn. **99**: 12.

ludwigi Avestina AESCHT & FOISSNER, 1990 – Zool. Anz. **225**: 102. **OT**: Spruce forest litter; "Böhmerwald", Upper Austria (48°42'N, 14°E). **HP** (**od**): 1993/119 (dry silver nitrate method).

lugeri Eschaneustyla FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 572. **OT**: Forest soil; Taveuni island, Fiji Islands, Pacific Ocean (16°52'S, 180°E). **HP** (**od**): 2002/738; 4 **PP**: 2002/739, 2002/740, 2002/741, 2002/742.

lwoffi Heteropolaria (FAURÉ-FREMIET, 1943) FOISSNER & SCHUBERT, 1977 – FOISSNER (1983) Zool. Jb. Syst. **110**: 401. **OT**: Morbid carp (*Cyprinus carpio*) from a fish farming; Kremsmünster, Upper Austria (48°3'N, 14°8'E). 2 **NP?** (**sd**): 1982/73; 1982/74 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Protonym: *Epistylis lwoffi* FAURÉ-FREMIET, 1943 – Bull. Soc. zool. Fr. **68**: 154.

M

macrostoma Apocolpodidium (*Phagoon*) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 498. **OT**: Soil; Everglades, Florida, USA (about 26°N, 81°W). **HP** (**od**): 2002/662 (wet silver nitrate method); 2 **PP**: 2002/663 (wet silver nitrate method); 2002/664. **Remarks**: Nucleospecies of the subgenus (Tab. 6).

macrostoma Paraurostyla FOISSNER, 1982 – Arch. Protistenk. **126**: 43. **OT**: Soil of a riverine floodplain; Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). **HP** (**sd**): 1981/83. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Parakahliella m.* and nucleospecies of the latter genus according to BERGER, FOISSNER & ADAM (1985, Protistologica **21**: 309; Tab. 6), which is the nucleogenus of Parakahliellidae EIGNER, 1997 (Tab. 7).

macrostoma Pseudoamphileptus (CHEN, 1955) FOISSNER, 1983 – Zool. Jb. Syst. **110**: 405. **OT**: Morbid carp (*Cyprinus carpio*) from a fish farming; Kremsmünster, Upper Austria (48°3'N, 14°8'E). **NP?** (**sd**): 1982/57. **Remarks**: Neotypi-

fication not mentioned in paper, but slide designated, although mislabelled as "genotype". Protonym: *Hemiophrys m.* CHEN, 1955 – Acta hydrobiol. sin. **1955**, **2**: 136. Nucleospecies of *Pseudoamphileptus* FOISSNER, 1983 (Tab. 6).

macrostyla Urosoma (WRZESNIOWSKI, 1866) FOISSNER, 1982 – Arch. Protistenk. **126**: 114. **OT**: Soil of a riverine floodplain; Althan near Zwentendorf, Lower Austria (48°23'N, 15°56'E). **NP? (sd)**: 1981/80. **Remarks**: Neotypification not mentioned in the original paper, but slide designated, although mislabelled as "paratypes". Protonym: *Oxytricha m.* WRZESNIOWSKI, 1870 – Z. wiss. Zool. **20**: 474. Since original material of the junior synonym of *U. ambigua* (see above) has been deposited, the neotypification needs clarification.

magna Schizocalyptra DRAGESCO, 1968 – Protistologica **4**: 97. **OT**: Shallow-water; Roscoff, France (48°44'N, 3°59'W). 2 **SP (sd)**: 2002/917, 2002/937 (wet silver nitrate method). **Remarks**: "Typification" not mentioned, but labels refer to this paper; each slide has one mark. Collections years 1956 und 1968. Nucleospecies (Tab. 6).

magna Tillina GRUBER, 1879 [Zool. Anz. **2**: 519] – FOISSNER (1985) Arch. Protistenk. **129**: 257. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher, urban area of Salzburg, Austria (47°48'N, 13°02'E). **NP? (sd)**: 1984/28 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratypes". Nucleospecies (Tab. 6). Currently *Colpoda m.* (GRUBER, 1879) LYNN, 1978 according to FOISSNER (1993, Protozoenfauna **4/1**: 215).

magnigranulosa Amphisiella FOISSNER, 1988 – Stapfia **17**: 115. **OT**: Soil of a coffee plantage near Nairobi, Kenya (1°20'S, 36°50'E). **HP** (unspecific **od** on page 88): 1989/21; **PP**: 1989/22.

magnus Loxodes STOKES, 1887 [Ann. Mag. nat. Hist. **20**: 106] – FOISSNER & RIEDER (1983) Zool. Anz. **210**: 3. **OT**: Decomposing litter on the margin of a quarry pond; Karlsruhe, Germany (49°0'N, 8°30'E). 2 **NP? (sd)**: 1981/2, 1981/3. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes".

major Geleia DRAGESCO, 1954 [Bull. Soc. zool. Fr. **79**: 60] – DRAGESCO (1999) Stapfia **66**: 20. **OT**: Shallow-water; Roscoff, France (48°44'N, 3°59'W) and Thau lagoon, Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 5 **NP?** (unspecific **od** on page 7): 1999/154, 1999/155, 1999/156, 1999/157, 1999/158. **Remarks**: Different localities and sampling years: without site 1994 (one mark, first slide), Séte 1997 (three marks, second slide; two marks, third slide) and Thau 1999 (six and two marks, respectively). Labels undesignated, thus "typification" according to paper; as two varieties are mentioned, the taxonomy of this species needs clarification. Since the unavailable genus was revalidated by FOISSNER in COOMBS et al. (1998, The karyorelictids: 308), nomenclatural authorship is complicated, viz. a new combination is not supported by ICZN (1999 Art. 51.3, 50.1, Rec. 50C, 51F).

margaritata chlorelligera Pseudovorticella (KAHL, 1935) FOISSNER & SCHIFFMANN, 1975 – Protistologica **11**: 420. **OT**: *Sphagnum* infusion; Ibmer Moor, Upper Austria (48°3'N, 12°57'E). 4 **NP? (sd)**: 1975/55, 1975/56, 1975/57, 1982/62 (all dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; slides "typified" on a sheet of paper, but not labelled. The latter slide also designated, although mislabelled as "holotype", but from the same site. Protonym, trinominal: *Vorticella m. c.* KAHL, 1935 – Tierwelt Dtl. **30**: 730. Considered as junior subjective synonym of *Pseudovorticella fasciculata* (MÜLLER, 1773) by FOISSNER & BROZEK (1996, Intern. Revue Ges. Hydrobiol. **81**: 348).

marina Fuscheria PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 29. **OT**: Pancake sea ice; Weddell Sea, Antarctica (69°49'S, 8°02'W). **SP? (od)**: 2001/128. **Remarks**: Slide with one big circle, moreover "cells" are announced in the paper.

martinicense Parduczia (NOUZAREDE, 1977) DRAGESCO, 1999 – Stapfia **66**: 68. **OT**: Marine sand; Thau lagoon, Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 5 **NP** (unspecific **od** on page 7): 1999/173, 1999/174, 1999/175, 2002/850, 2002/856. **Remarks**: Protonym: *Geleia m.* NOUZAREDE, 1977 – Bull. Stn. biol. Arcachon (N.S.), Suppl. **28**. Since the genus has femine gender the species name has to be corrected to *P. martinicensis* according to ICZN (1999 Art. 31.2).

massutii Pseudomonilicaryon (KAHL, 1933) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 373. **OT**: Highly saline soil; Etosha National Park, Okerfontein water-hole, Namibia (18°45'S, 16°45'E). 5 **NP (od)**: 2002/34, 2002/42, 2002/43, 2002/44, 2002/45. **Remarks**: Protonym: *Dileptus m.* KAHL, 1933 – Tierwelt Nord- und Ostsee **II. c3**: 63.

matiense Telotrochidium (MARTIN-CERECEDA, SERRANO & GUINEA, 1999) MARTIN-CERECEDA, GUINEA, BONACCORSO, DYAL, NOVARINO & FOISSNER, 2007 – Europ. J. Protistol. **43**: 265. **OT**: Inlet water to a rotating biological contractor wastewater treatment plant; Madrid, Spain (40°24, 3°41'W). 2 **SP? (sd?)**: 2007/665; 2007/669 (dry silver nitrate method). 7 **PP**: 2007/666, 2007/667, 2007/668, 2007/670, 2007/671, 2007/672, 2007/673. **Remarks**: Protonym: *Opisthonecta m.* MARTIN-CERECEDA, SERRANO & GUINEA, 1999 – J. Eukaryot. Microbiol. **46**: 283. MARTIN-CERECEDA et al. (2007: 266) only mentioned that a type culture has been deposited at the Culture Collection of Algae and Protozoa (CCAP, accession number 1655/2), which was also used for the investigation. Not explicitly "typified", but two slides labelled as "holotype", because of different preparation methods, and seven as "paratypes"; needs clarification.

matthesi tristicha Urotricha FOISSNER & PFISTER, 1997 – Limnologica (Berlin) **27**: 343. **OT**: Plankton of an artificial pond at Salzburg University, Salzburg, Austria (47°48'N, 13°40'E). 4 **SP (od)**: 1998/99 (mislabelled as "holotype"), 1998/95, 1998/96, 1998/98. **Remarks**: On page 343 the authors mention "A holotype slide and three syntypes", an incorrect combination according to ICZN (1999 Art. 73.1, 73.2).

matthesi Urotricha KRAINER, 1995 – Lauterbornia **21**: 43. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50' 15°30'W). **HP** (unspecific **od** on page 40): 1992/41; **PP**: 1992/42. **Remarks**: FOISSNER & PFISTER (1997: 340) incorrectly refer to "One

holotype and one syntype slide" (cp. note above). Currently *U. matthesi matthesi* according to FOISSNER, BERGER & SCHAUMBURG (1999, Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 340).

megastoma Enchelyodon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 139. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). 2 **SP** (**od**): 2002/364, 2002/347; 4 **PP**: 2002/348, 2002/349, 2002/391, 2002/392. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

metabolicus Woodruffides (JOHNSON & LARSON, 1938) FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 232. **OT**: Soil of a coastal rain forest; Shimba Hills near Mombasa, Kenya (4°13'S, 39°25'E). 3 **NP?** (**sd**): 1988/65, 1988/66 (wet silver nitrate method); 1988/67 (labelled and published as *W. metabolica*). **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Woodruffia metabolica* JOHNSON & LARSON, 1938 – Arch. Protistenk. **90**: 383. Since the genus has masculine gender the species name was corrected to *W. metabolicus* by FOISSNER (1992 Protozoenfauna **4/1**: 630), although not formally.

microstoma Colpodidium (*Colpodidium*) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 485. **OT**: Mud from granitic rock-pools on the Kruger Tablets; Kruger National Park, Republic of South Africa (23°S, 31°E). **HP** (**od**): 2002/551 (wet silver nitrate method); 2 **PP**: 2002/552; 2002/553 (dry silver nitrate method).

minima Gastrostyla HEMBERGER, 1985 [Arch. Protistenk. **130**: 406] – FOISSNER (1997) Limnologica (Berlin) **27**: 225. **OT**: Benthos; Röslau, a clean, periodically acidified brook, about 2.5 km down-stream the spring in the Fichtelgebirge, Bavaria; Germany (about 50°N, 12°E). 8 **SP?** (**sd**): 1998/77, 1998/78, 1998/79, 1998/80, 1998/81, 1998/82, 1998/83, 1998/84. **Remarks**: Stated as "neotypes" (8 slides) in AESCHT (2003, Beitr. Naturk. Oberösterreichs **12**: 390), but in fact deposited as vouchers of the misidentified species of FOISSNER (1997, Limnologica (Berlin) **27**: 225) for which the new name ("nov. spec.") *Gastrostyla* (*Kleinstyla*) *bavariensis* was established by FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 743). Since this taxon is the nucleospecies of the subgenus (Tab. 6) a name-bearing "type" is necessary according to ICZN (1999 Art. 72.3), though no statement to such "typification" is included in the paper, thus strictly the subgenus is nomenclaturaly unavailable due to aphory. According to ICZN (1999 Art. 65.2.2) "by the discovery of an overlooked fixation of type species for the type genus (or of the name-bearing type for that type species), the case is to be referred to the Commission for a ruling [Art. 70.2]".

minima Opisthonecta FOISSNER, 1975 – Protistologica **11**: 407. **OT**: Streamlet Gaisbach; Wartberg ob der Aist, Upper Austria (48°19'N, 14°30'E). 5 **SP** (**sd**): 1975/158, 1975/159, 1975/160, 1975/161, 1975/162 (all dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; slides "typified" on a sheet of paper, but not labelled. Location according to personal communication.

minima Phialina (KAHL, 1927) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 227. **OT**: Soil; surroundings of the Mzima Springs, Tsavo National Park West, Kenya (2°59'S, 38°1'E). 3 **NP** (**od**): 2002/787, 2002/788, 2002/789. **Remarks**: Protonym: *Lacrymaria minima* KAHL, 1927 – Arch. Protistenk. **60**: 103.

minima Rhabdoaskenasia KRAINER & FOISSNER, 1990 – J. Protozool. **37**: 426. **OT**: Excavated groundwater ponds near Graz, Styria, Austria (47°04'N, 15°25'E). **HP** (unspecific **od** on page 415): 1992/27; **PP**: 1992/39. **Remarks**: Nucleospecies (Tab. 6).

minor Cristigera PENARD, 1922 [Études Infusoires: 179] – FOISSNER, ADAM & FOISSNER I. (1982) Zool. Jb. Syst. **109**: 459. **OT**: Periphyton; Lake Fuschlsee, Salzburg, Austria (47°48'N, 13°17'E). **NP?** (**sd**): 1981/60. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratype". Location according to slide.

minor Sikorops FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 209. **OT**: Highly saline, alkaline soil; near the village of Himmafushi, North-Male Atoll, Maldives (about 3°N, 74°W). **HP** (**od**): 2002/579; 2 **PP**: 2002/580, 2002/581.

minus Spirostomum ROUX, 1901 [Faune infusorienne: 80.] – AUGUSTIN & FOISSNER (1992) Arch. Protistenk. **141**: 244. **OT**: Activated slude plant; Zellhof, Upper Austria (47°59'N, 13°6'E). 3 **NP** (**od** on page 244)): 1993/86 (wet silver nitrate method); 1993/87, 1993/88. **Remarks**: Only two slides announced in the paper.

minus viride Spirostomum FOISSNER & GSCHWIND, 1998 – Ber. Nat.-Med. Ver. Salzburg **12**: 41. **OT**: Pond at Bodenloser See; Horb am Neckar, Germany (48°22'N, 8°40'E). **HP** (**od**): 1999/48; 2 **PP**: 1999/49, 1999/50 (labelled as as *S. m. viridis*).

minuta Chilodonatella DRAGESCO, 1966 [Arch. Protistenk. **109**: 186] – BECARES & FOISSNER (1994) Linzer biol. Beitr. **26**: 516. **OT**: Two-stage activated sludge pilot plant (A+B system) treating wastewater from a pharmaceutical company; León, Spain (42°36'N, 5°34'W). 3 **NP** (**od**): 1994/5 (four marks), 1994/6 (one mark, mislabelled as "syntype"), 1994/7 (three marks). **Remarks**: Nucleospecies (Tab. 6).

minuta Frontonia DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 54. **OT**: Limnetic sites; Yaounde, Cameroun (3°52'N, 11°31'E). 2 **SP** (**sd**): 2002/900, 2002/938 (wet silver nitrate method). **Remarks**: "Typification" not mentioned, but labels unspecifically refer to this paper; each slide one mark.

minuta Pseudoholophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 99. **OT**: Mud from granitic rock-pools in a stream; Windhoek, Daan Viljoen Game Park, Namibia (22°35'S, 17°5'E). **HP** (**od**): 2002/505; 2 **PP**: 2002/506, 2002/507.

minutus Enchelyodon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 136. **OT**: Mud from granitic rock-pools in a stream; Windhoek, Daan Viljoen Game Park, Namibia (22°35'S, 17°5'E). **HP** (**od**): 2002/508; 2 **PP**: 2002/509, 2002/510.

mirabile Pelagostrombidium (PENARD, 1916) KRAINER, 1991 – Europ. J. Protistol. **27**: 64. **OT**: Excavated groundwater ponds; Leibnitzer Feld, Styria, Austria (46°49'N, 15°32'E). 2 **NP** (unspecific **od** on page 61): 1992/25, 1992/26. **Remarks**: Protonym: *Strombidium m.* PENARD, 1916 – Mém. Soc. Phys. Hist. Nat. Genève **38**. Nucleo-

species of *Pelagostrombidium* KRAINER, 1991 (Tab. 6), which is the nucleogenus of Pelagostrombidiidae AGATHA, 2004 (Tab. 7).

mirabilis Ciliofaurea (DRAGESCO, 1954) DRAGESCO, 1960 – Trav. Stn. biol. Roscoff (N. S.) **12**: 225. **OT**: Marine sand; Roscoff, France (48°44'N, 3°59'W). **NP? (sd)**: 2003/99 (collected in 1962). **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original author. Protonym: *Faurea m*. DRAGESCO, 1954 – Bull. Soc. zool. Fr. **79**: 64.

mobilis Engelmanniella (ENGELMANN, 1862) FOISSNER, 1982 – Arch. Protistenk. **126**: 66. **OT**: Soil of a riverine floodplain; Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). 2 **NP? (sd)**: 1981/96, 1982/55. **Remarks**: Neotypification not mentioned in the original paper, but slides labelled (one incorrectly as "genotype"). Protonym: *Uroleptus m*. ENGELMANN, 1862 – Z. wiss. Zool. **11**: 386. Nucleospecies (Tab. 6).

monilata Coniculostomum (DRAGESCO & NJINE, 1971) NJINE, 1979 – DRAGESCO & DRAGESCO-KERNÉIS (1986) Faune tropicale **26**: 456. **OT**: Unspecific; Cotonou, Benin (6°15'N, 2°20'E). 2 **NP? (sd)**: 2003/80, 2003/134 (labelled *Laurentiella m*). **Remarks**: "Typification" not mentioned in the original paper, but label refer to this paper (dated 1979). Site according to slide. Revision in BERGER (1999, Monogr. Biologicae **78**: 608). Protonym: *Laurentia m*. DRAGESCO & NJINE, 1971 – AnnlsFac. Sci. Univ. féd. Cameroun **7-8**: 124. Nucleospecies of *Coniculostomum* NJINE, 1979 (Tab. 6).

monilatus Monilicaryon (STOKES, 1886) JANKOWSKI, 1967 – FOISSNER (1997) Limnologica (Berlin) **27**: 197. **OT**: Amper river; near town of Fürstenfeldbruck, Bavaria, Germany (48°10'N, 11°15'E). 4 **NP (od)**: 1998/73, 1998/74, 1998/75, 1998/76. **Remarks**: Protonym: *Dileptus m*. STOKES, 1886 – Ann. Mag. nat. Hist. **17**: 102. Nucleospecies of *Monilicaryon* JANKOWSKI, 1967 (Tab. 6).

monostyla Urosomoida FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 784. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°55'S, 15°55'E). **HP (od)**: 2002/125; **PP**: 2002/126.

moserae Pelagolacrymaria FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 265. **OT**: Höglwörther See, a small lake in southern Bavaria, Germany (47°49'N, 12°50'E). **HP (od)**: 1999/74; 2 **PP**: 1999/72, 1999/73. **Remarks**: Nucleospecies (Tab. 6).

mucicola Cyrtolophosis STOKES, 1885 [Am. Nat. **19**: 439] – FOISSNER (1987) Zool. Beitr. N. F. **31**: 249. **OT**: Soil of an uncultivated grassland dominated by *Poa* sp.; Golan Hills, Israel (33°0'N, 35°45'E). 2 **NP? (sd)**: 1988/61, 1988/62. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

mucronatus Dileptus PENARD, 1922 [Études Infusoires: 80] – FOISSNER (1984) Stapfia **12**: 94. **OT**: Soil of a meadow near Neusiedlersees, a soda lake in the "hell" region near Illmitz, Burgenland, Austria (47°45'N, 16°49'E). **NP? (sd)**: 1984/34. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes".

multimicronucleatus Stentor DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 69. **OT**: Marine; Yaounde, Cameroun (3°52'N, 11°31'E). 3 **SP? (sd)**: 2003/58 (1969); 2003/60, 2003/61 (1968, two Feulgen stainings). **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original author. Two further slides from Butare 1985 likely refer to DRAGESCO & DRAGESCO-KERNÉIS (1986, Faune tropicale **26**: 409), thus vouchers.

multinucleata Actinobolina FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 383. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/332; 4 **PP**: 2002/333, 2002/334, 2002/338, 2002/339.

multinucleata Afroamphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 699. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/111; 2 **PP**: 2002/112, 2002/113. **Remarks**: Nucleospecies (Tab. 6).

multinucleata Afrothrix FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 588. **OT**: Litter and *Stipagrostis* roots from a sand dune; between the towns of Aus and Helmeringhausen, Namibia (26°5'S, 16°35'E). **HP (od)**: 2002/255; **PP**: 2002/256.

multinucleata Amphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 685. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/391; 2 **PP**: 2002/392, 2002/393.

multinucleata Avelia DRAGESCO, 1999 – Stapfia **66**: 43. **OT**: Marine sand; Thau lagoon, Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2 **SP** (unspecific **od** – incorrectly as "neotypes" – on page 7): 1999/163, 1999/164. **Remarks**: Labelled as "syntypes" with 4 and 3 marks, respectively.

multinucleata Enchelaria FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 221. **OT**: Soil from *Aloe dichotoma* forest; Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°30'S, 18°25'E). **HP (od)**: 2002/419; 4 **PP**: 2002/418, 2002/420, 2002/421, 2002/422. **Remarks**: Nucleospecies (Tab. 6).

multinucleata Enchelys (DRAGESCO & DRAGESCO-KERNÉIS, 1979) BERGER, FOISSNER & ADAM, 1984 – Zool. Jb. Syst. **111**: 349. **OT**: Soil of ski slope; Schlossalm Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **NP? (sd)**: 1986/24. **Remarks**: Neotypification not mentioned in the original paper, but one slide labelled as neotype, another (inv. no. 1986/25) as voucher. Protonym: *Enchelyodon m*. DRAGESCO & DRAGESCO-KERNÉIS, 1979 – Acta Protozool. **18**: 405.

multinucleata Pleurotricha DRAGESCO, 2003 – Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**: 36. **OT**: Not given; Butare, Rwanda (about 2°35'S, 29°44'E). **HP** (unspecific **od** – incorrectly as "neotypes" – on page 7): 2006/37.

multinucleata Remanella KAHL, 1933 [Tierwelt Nord- und Ostsee **II**. **c3**: 65] – FOISSNER (1996) Europ. J. Protistol. **32**: 235. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP (od)**: 2003/98 (1966), 2003/106 (1962). **Remarks**: The slides were collected and deposited

by DRAGESCO, if they were studied by FOISSNER and refer to the material announced on page 235 of his paper remains to be clarified. Since the unavailable genus was revalidated in the FOISSNER'S publication, nomenclatural authorship is complicated, viz. a new combination is not supported by ICZN (1999 Art. 51.3, 50.1, Rec. 50C, 51F).

multinucleatum Arcuospathidium FOISSNER, 1999 – Biodiversity and Conservation **8**: 330. **OT**: Forest soil; near the village of Limuru, about 25 km NE of Nairobi, Kenya (1°S, 36°50'E). **HP (od)**: 1999/4; **PP**: 1999/5.

multinucleatum Paragonostomum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 828. **OT**: Highly saline crust soil from small quartz stones; Coastal National Park near Lüderitz, Namibia (26°40'S, 15°10'E). **HP (od)**: 2002/274. **Remarks**: The "paratype" (inv. no. 2002/276) is indicated by FOISSNER as beeing lost on an external sheet of paper.

multinucleatus Papillorhabdos FOISSNER, 1984 – Stapfia **12**: 42. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher, urban area of Salzburg, Austria (47°48'N, 13°02'E). **HP** (unspecific **od** on page 8): 1984/26. **Remarks**: Nucleospecies (Tab. 6). Corrected to *P. multinucleata* by AESCHT (2001, Denisia **1**: 114).

multiseta Uroleptopsis DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 97. **OT**: Not given; near Yaounde, Cameroun (about 3°52'N, 11°31'E). **HP (sd)**: 2002/918 (labelled as *Uroleptaspis m.*). **Remarks**: "Typification" not mentioned, but label refers to this paper; one mark. Nucleospecies of *Plesiotricha* DRAGESCO, 1970 (Tab. 6). DRAGESCO & DRAGESCO-KERNÉIS (1986, Faune tropicale **26**: 427, 429) renamed this species (misspelled as *Uroleptaspis m.*) as *Kahliella microstoma* due to secondary homonymy.

multistilata Holosticha KAHL, 1928 [Arch. Hydrobiol. **19**: 212] – FOISSNER (1982) Arch. Protistenk. **126**: 50. **OT**: Soil; near the village of Grafenwörth, Tullnerfeld, Lower Austria (48°23'37"N, 15°46'35"E). **NP? (sd)**: 1981/90. **Remarks**: Neotypification not mentioned in the original paper, but slide designated, although mislabelled as "paratype". Demonstrating possible discrepancies between publication and "unpublished evidence", thus a "neotype" was not "automatically" or by "curatorial routine" assumed as stated by BERGER (2006, Monogr. Biologicae **85**: 319). 6 sites are given, but no specific. Currently junior subjective synonym of *Anteholosticha intermedia* (BERGH, 1889) according to BERGER (2006, Monogr. Biologicae **85**: 317 and p. 328 for more detailed neotype location).

multistriata Supraspathidium FOISSNER & DIDIER, 1982 – Annls Stn biol. Besse **15**: 255. **OT**: Detritus of a streamlet; Besseen-Chandesse area, France (45°31'N, 2°56'E). 2 **SP (sd)**: 1981/11, 1981/12. **Remarks**: "Typification" not mentioned in the original paper, but two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Since the genus has neuter gender, the species name has been corrected to *S. multistriatum* FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 278).

muscicola Cyclidium KAHL, 1931 [Tierwelt Dtl. **21**: 380] – FOISSNER (1995) Arch. Protistenk. **145**: 51. **OT**: No specific site given; "Hawaii", USA [North Kohala, Temporary stream (20°4'N, 155°50'W)] **2 NP (od)**: 1997/85, 1997/86. **Remarks**: Also a "syntype" is mentioned on page 38 and labelled (inv. no. 1997/86), which is nomenclaturally incorrect (cp. ICZN 1999 Art. 73.2, 75). Currently *Protocyclidium m.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 524).

muscicola Keronopsis (KAHL, 1932) HEMBERGER & WILBERT, 1982 – FOISSNER (1987) Zool. Beitr. N. F. **31**: 204. **OT**: Lichens and mosses with adhering soil; village of Sandkäs, Isle Bornholm, Baltic Sea, Denmark (55°10'N, 15°0'E). 2 **NP? (sd)**: 1988/145, 1988/146. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Paraholosticha m.* KAHL, 1932 – Tierwelt Dtl. **25**: 545.

muscicola Phialinides (KAHL, 1943) FOISSNER & WENZEL, 2004 – Acta Protozool. (Suppl.) **43**: 63. **OT**: Spruce-fir-beech forest soil; Neuwald, Lower Austria (47°46'N, 15°32'E). 4 **NP (od)**: 2007/97, 2007/98, 2007/99, 2007/100. **Remarks**: Protonym: *Lacrymaria m.* KAHL, 1943 – Handbücher für die praktische wissenschaftliche Arbeit **31/32**: 17. Original description reprinted in the publication including the redescription and recombination.

muscicola Protospathidium DRAGESCO & DRAGESCO-KERNÉIS, 1979 – Acta Protozool. **18**: 411. **OT**: Moss; University garden, Cotonou, Benin (6°15'N, 2°20'E). **SP? (sd)**: 2006/50 (from 1978, labelled as *Spathidium serpens*). **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein according to FOISSNER & XU (2007, Monogr. Biologicae **81**: 119f.); including a note on the type locality. Label untypified, but shows one big circle, status needs clarification.

muscorum Chilodontopsis KAHL, 1931 [Tierwelt Dtl. **21**: 227] – FOISSNER (1984) Stapfia **12**: 98. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel, Bad Gastein, Salzburg, Austria (47°7'N, 13°7'E). **NP? (sd)**: 1984/8 (Fig. 13). **Remarks**: Neotypification not mentioned in paper (see page 8), reference of "paratype" needs clarification.

muscorum Euplotes DRAGESCO, 1970 [AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 134.] – DRAGESCO & DRAGESCO-KERNÉIS (1986) Faune tropicale **26**: 503. **OT**: Unknown; Butaré, Rwanda (2°35'S, 29°4'E). **NP? (sd)**: 2003/82. **Remarks**: Neotypification not mentioned in paper, but slide labelled as "n. sp." with one mark. Site according to slide; stated in the paper as mosses from Cameroun. Currently *Euplotopsis m.* according to BORROR & HILL (1995, J. Eukaryot. Microbiol. **42**: 460).

muscorum Litonotus (KAHL, 1931) BLATTERER & FOISSNER, 1988 – Stapfia **17**: 14. **OT**: Soil of an *Eucalyptus* forest; Belair National Park near Adelaide, Australia (35°0'S, 138°38'E). 2 **NP? (sd)**: 1989/40, 1989/41. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Lionotus m.* KAHL, 1931 – Tierwelt Dtl. **21**: 195.

muscorum Paruroleptus (KAHL, 1932) FOISSNER, 1982 – Arch. Protistenk. **126**: 61. **OT**: Soil of a beech forest; village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **NP? (sd)**: 1981/79. **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". Location according to slide. Protonym: *Uroleptus m.* KAHL, 1932 – Tierwelt Dtl. **25**: 548. Currently *Birojiima m.* according to BERGER & FOISSNER (1989, Bull. Br. Mus. nat. Hist. (Zool.) **55**: 25).

"*muscorum rhopaloplites Arcuospathidium*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 200. **OT**: Forest soil; surroundings of Alice Springs, that is, a hill beside the road to the Ayers Rock, Australia (about 24°S, 133°E). **HP (od)**: 2007/147; **PP**: 2007/147, 2007/148 (figured), 2007/149, 2007/150 (figured), 2007/151. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

muscorum Sathrophilus (KAHL, 1931) CORLISS, 1960 – FOISSNER, ADAM & FOISSNER I. (1982) Zool. Jb. Syst. **109**: 455. **OT**: Soil; village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **NP? (sd)**: 1981/57 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes"; locality according to slide. Protonym: *Saprophilus m.* KAHL, 1931 – Tierwelt Dtl. **21**: 350.

muscorum Steinia (KAHL, 1932) FOISSNER, 1989 – FOISSNER (1982) Arch. Protistenk. **126**: 105. **OT**: Soil of an alpine pasture; Hochmais at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°7'N, 12°48'E). **NP? (sd)**: 1981/93. **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratype". Protonym: *Oxytricha* (*Steinia*) *m.* KAHL, 1932 – Tierwelt Dtl. **25**: 613. Currently *Cyrtohymena m.* and nucleospecies of the latter genus and subgenus (Tab. 6) according to FOISSNER (1989, Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 239) and FOISSNER (2004, Denisia **13**: 371), although not formally transferred.

muscorum Strongylidium KAHL, 1932 [Tierwelt Dtl. **25**: 553] – FOISSNER (1984) Stapfia **12**: 107. **OT**: Soil of a damp willow floodplain (*Phalaris arundinacea-Urtica dioica*); Althan near Bierbaum, Lower Austria (48°23'N, 15°56'E). **SP (sd)**: 1984/83 (six marks). **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype". FOISSNER (1988, Stapfia **17**: 123) established *Hemiamphisiella terricola* for his misidentification referring to the previous "type" material.

musculus Paruroleptus KAHL, 1932 – FOISSNER (1984) Stapfia **12**: 109. **OT**: Infusion of plant remnants and mud; Hellbrunner-Bach in the urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP? (sd)**: 1984/84, 1984/85. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although latter one mislabelled as "paratype". Protonym: *Holosticha* (*Paruroleptus*) *m.* KAHL, 1932 – Tierwelt Dtl. **25**: 588. Currently *Uroleptus m.* according to FOISSNER, BLATTERER, BERGER & KOHMANN (1991) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/91**: 248).

mutabile Acropisthium PERTY, 1852 [Kenntn. klein. Lebensformen: 149] – FOISSNER (1984) Stapfia **12**: 60. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher, urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP? (sd)**: 1984/44, 1984/45 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides labelled, although incorrectly as "paratype". Nucleospecies (Tab. 6); *Acropisthium* is the nucleogenus of Acropisthiidae FOISSNER & FOISSNER, 1988 (Tab. 7).

mutabilis Pseudochilodonopsis FOISSNER, 1981 – Zool. Jb. Syst. **108**: 287. **OT**: Soil; Hochtor-Nord at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°04'N, 12°50'E). **HP (sd)**: 1981/42. **Remarks**: "Typification" not mentioned in the original paper, but slide designated.

mystacea mystacea Gastrostyla (*Spetastyla*) (STEIN, 1859) STERKI, 1878 – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 724. **OT**: Ephemeric, eutrophic meadow pond; near the Salzburg University, Austria (47°48'N, 13°40'E). 5 **NP (od)**: 2002/623, 2002/624, 2002/625, 2002/626, 2002/627. **Remarks**: Protonym: *Oxytricha mystacea* STEIN, 1859 – Org. Infusionsthiere: 188. Nucleospecies of the subgenus (Tab. 6).

N

namibicola Parakahliella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 611. **OT**: Sandy bark from *Acacia erioloba*; Southern Namib Desert, centre of Sossus Vlei, Namibia (24°50'S, 15°20'E). **HP (od)**: 2002/249; 3 **PP**: 2002/250, 2002/251, 2002/252.

namibicola Protospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 305. **OT**: Dune soil (sand); escarpment of central Namib Desert, about 20 km north of the village of Solitaire, Namibia (23°50'S, 16°0'E). **HP (od)**: 2002/257; 2 **PP**: 2002/258 (Fig. 35), 2002/259.

namibicola Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 246. **OT**: Slightly saline litter and sand; Southern Namib Desert, centre of Sossus Vlei, Namibia (24°50'S, 15°20'E). **HP (od)**: 2002/263; 6 **PP**: 2002/264, 2002/265, 2002/266, 2002/267, 2002/268, 2002/269.

namibiense Gonostomum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 810. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/121, **PP**: 2002/122.

namibiense namibiense Arcuospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 285. **OT**: Soil from *Aloe dichotoma* forest; Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°30'S, 18°25'E). **HP (od)**: 2002/432; 3 **PP**: 2002/417, 2002/429, 2002/431.

namibiense Obliquostoma FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 119. **OT**: Litter from *Combretum imberbe* (leadwood tree); foot of the Brandberg, an inselberg at the east margin of the central Namib Desert, Namibia (21°S, 14°35'E). **HP (od)**: 2002/229; 3 **PP**: 2002/230, 2002/231, 2002/232. Currently *Declivistoma n.* (FOISSNER, AGATHA & BERGER in BERGER & AL-RHASHEID this volume).

namibiense tristicha Arcuospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 288. **OT**: Bark from a *Maytenus oleoides* tree (Celastraceae) in the botanical garden; Cape Town, Republic of South Africa (33°53'S, 18°25'E). **HP (od)**: 2002/554; 2 **PP**: 2002/555, 2002/556.

namibiensis Amphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 656. **OT**: Highly saline soil; Etosha National Park, Wolfsnes water-hole near the margin of the Etosha Pan, Namibia (19°S, 15°50'E). **HP (od)**: 2002/108; 6 **PP**: 2002/109, 2002/110, 2002/147, 2002/148, 2002/5, 2002/8.

namibiensis costaricensis Maryna FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 942. **OT**: Rock-pools at river bank: Rio Corobici, surroundings of the hacienda "La Pacifica" (Centro Ecológico "La Pacifica") near the town of Cañas, Costa Rica (10°28'N, 85°10'W). 2 **SP** (**od**): 2002/745; 2002/748 (wet silver nitrate method); 5 **PP**: 2002/743, 2002/744; 2002/746, 2002/747, 2002/749 (wet silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

namibiensis Hemisincirra FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 857. **OT**: Litter around *Stipagrostis* roots in a sand dune; between the towns of Aus and Helmeringhausen, Namibia (26°5'S, 16°35'E). **HP** (**od**): 2002/253; **PP**: 2002/254.

namibiensis Kuehneltiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 916. **OT**: Bark from *Sterculia africana*; escarpment of the central Namib Desert, surroundings of the Ameib Guest Farm, about 120 km northeast of the town of Swakopmund, Namibia (21°50'S, 15°35'E). **HP** (**od**): 2002/400; 7 **PP**: 2002/401, 2002/402, 2002/403, 2002/404, 2002/405, 2002/406, 2002/407 (all wet silver nitrate method).

namibiensis maldivensis Rostrophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 994. **OT**: Coastal soil; near the village of Hembadoo, North Male Atoll, Maldives (about 4°N, 74°W). **HP** (**od**): 2002/582; 3 **PP**: 2002/583, 2002/584, 2002/585 (all wet silver nitrate method).

namibiensis Metacineta FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 404. **OT**: Slightly saline sand dune; escarpment of central Namib Desert, about 20 km north of the village of Solitaire, Namibia (23°50'S, 16°0'E). **HP** (**od**): 2002/260; 4 **PP**: 2002/258 (Fig. 35), 2002/259, 2002/261, 2002/262.

namibiensis namibiensis Maryna FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 935. **OT**: Mud from granitic rock-pools in a stream; Windhoek, Daan Viljoen Game Park, Namibia (22°35'S, 17°05'E). **HP** (**od**): 2002/496; 7 **PP**: 2002/497, 2002/498, 2002/499, 2002/500, 2002/501, 2002/502, 2002/503 (all wet silver nitrate method).

namibiensis Plagiocampa FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 542. **OT**: Slightly saline sand dune; escarpment of central Namib Desert, about 20 km north of the village of Solitaire, Namibia (23°50'S, 16°0'E). **HP** (**od**): 2002/444; **PP**: 2002/445.

namibiensis Sikorops FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 203. **OT**: Bark of a *Colophospermum mopane* tree; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP** (**od**): 2002/335; 5 **PP**: 2002/336, 2002/337, 2002/366, 2002/367, 2002/368.

namibiensis Urosomoida FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 780. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP** (**od**): 2002/373; 2 **PP**: 2002/372, 2002/374.

nana Pseudoplatyophrya (KAHL, 1926) FOISSNER, 1980 – Zool. Jb. Syst. **107**: 395. **OT**: Soil; Bad Hofgastein, Salzburg, Austria (47°5'N, 13°7'E). 3 **NP?** (**sd**): 1981/15, 1982/78 (wet silver nitrate method); 1981/16 (dry silver nitrate method; all incorrectly labelled as "genotypes"). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "holo- and paratypes". Different dates of deposition, but same sampling year; site according to label. The original locus classicus is the *Nymphaea* pond in the City Park of Hamburg, Germany (decaying *Glyceria*-stalks). Protonym: *Platyophrya n.* KAHL, 1926 – Arch. Protistenk. **55**: 237. Nucleospecies of *Pseudoplatyophrya* FOISSNER, 1980 (Tab. 6).

nasutum Didinium (MÜLLER, 1773) STEIN, 1859 – FOISSNER (1984) Stapfia **12**: 44. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher, urban area of Salzburg, Austria (47°48'N, 13°02'E). **NP?** (**sd**): 1984/28 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratype". Protonym: *Vorticella nasuta* MÜLLER, 1773 – Vermium Terrestrium et Fluviatilium: 102. Nucleospecies of *Didinium* STEIN, 1859 (Tab. 6), which is the nucleogenus of Didiniidae POCHE, 1913 (Tab. 7).

nauplia Oxytricha BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 219. **OT**: Salt soil with rush; Nauplia Bay, Peleponnesus, Greece (37°34'N, 22°48'E). **HP** (unspecific **od** on page 195): 1986/75; **PP**: 1986/76.

nigricans mobilis Bursellopsis (WANG & NIE, 1933) FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 387. **OT**: Höglwörther See, a small lake in southern Bavaria, Germany (47°49'N, 12°50'E). 2 **NP** (**od**): 2000/135, 2000/136 (mislabelled as *B. plankticola*). **Remarks**: Protonym: *Holophrya mobilis* WANG & NIE, 1933 – Contr. biol. Lab. Sci. Soc. China, Zool. Ser. **10**: 18.

nodosa Enchelyodon BERGER, FOISSNER & ADAM, 1984 – Zool. Jb. Syst. **111**: 345. **OT**: Soil of a meadow near Lange Lacke; Seewinkel, Burgenland, Austria (47°43'N, 16°49'E). 2 **SP** (**od**): 1984/34; 1984/35 (dry silver nitrate method). **Remarks**: Only one "holotype" and "paratype" indicated, but two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Two further slides (inv. no. 1984/36, 1984/37) are labelled as "paratype" and *E. nodosus*, but collected from another site, thus here considered as vouchers.

nodosa Fuscheria FOISSNER, 1983 [Annln naturh. Mus. Wien **84B**: 66; aphory] – FOISSNER & O'DONOGHUE (1990) Invertebr. Taxon. **3**: 666. **OT**: Small pond in metropolitan Perth, West Australia (31°57'S, 115°58'E). 2 **NP** (**od**): 1988/184, 1988/185. **Remarks**: Neotypification only generally mentioned on page 662, but slides designated, although mislabelled as "paratypes". Nucleospecies (Tab. 6); *Fuscheria* is the nucleogenus of Fuscheriidae FOISSNER, AGATHA & BERGER, 2002 (Tab. 7).

nova Sterkiella FOISSNER & BERGER, 1999 – Acta Protozool. **38**: 218. **OT**: Freshwater; North Carolina, USA. 8 **SP?** (**od**): 1999/111, 1999/112, 1999/113, 1999/114, 1999/115, 1999/116, 1999/117, 1999/118. **Remarks**: First slide designated as "holotype", but with three marks and as specimens in divisional morphogenesis are included, all may be considered as hapantophoronts (ICZN 1999 Art. 73.3).

novaki Arcuospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 303. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/338; 2 **PP**: 2002/350, 2002/358.

O

obliquum Apocyclidium (KAHL, 1926) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 520. **OT**: Lichen litter and soil under lichen carpets; Central Namib Desert, about 40 km north of the town of Swakopmund, Namibia (22°10'S, 14°25'E). 6 **NP (od)**: 2002/316, 2002/317 (wet silver nitrate method); 2002/318, 2002/319, 2002/320, 2002/321. **Remarks**: Protonym: *Cyclidium o*. KAHL, 1926 – Arch. Protistenk. **55**: 371. Nucleospecies (Tab. 6).

oblonga Holophrya MAUPAS, 1883 [Arch. Zool. Exper. Gen. **1**)] – DRAGESCO (2002) Linzer biol. Beitr. **34/2**: 1568. **OT**: Marine sand; Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 5 **NP?** (unspecific **od** on page 1547): 2002/798 (dated 1966), 2002/799 (dated 1996), 2002/800 (dated 1996), 2002/861 ("endosymbionts", undated), 2002/863 (undated).

octonucleatus Australocirrus FOISSNER, 1988 – Stapfia **17**: 123. **OT**: Soil of a deciduous forest; Nakuru Lake, Kenya (0°22'S, 36°5'E). **HP** (unspecific **od** on page 88): 1989/15; 2 **PP**: 1989/16, 1989/17. **Remarks**: Currently *Rigidocortex o*. and nucleospecies of the latter genus according to BERGER (1999, Monogr. Biologicae **78**: 718; Tab. 6).

olor Lacrymaria (MÜLLER, 1786) BORY [de SAINT-VINCENT], 1824 – FOISSNER (1997) Limnologica (Berlin) **27**: 186. **OT**: Acidic moorland pond; Franking, Upper Austria (48°3'N, 12°55'E). 2 **NP (od)**: 1998/64, 1998/65. **Remarks**: Protonym: *Vibrio o*. MÜLLER, 1786 – Animalc. infus.: 75. Nucleospecies of *Lacrymaria* BORY, 1824 (Tab. 6), which is the nucleogenus of Lacrymariidae FOISSNER, 1983 (Tab. 7).

opisthomuscorum Oxytricha FOISSNER, BLATTERER, BERGER & KOHMANN, 1991 [Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/91**: 311] – PETZ & FOISSNER (1997) Polar Record **33**: 318. **OT**: *Grimmia antarctici* and *Bryum pseudotriquetrum* moss, Casey Station, Antarctica (66°17'S, 110°31'E). **NP (od)**: 2000/150.

oppositevacuolatus Thigmogaster AUGUSTIN & FOISSNER, 1989 – Lauterbornia **1**: 40. **OT**: Activated sludge; Rußbach sewage treatment plant, Salzburg, Austria (47°35'N, 13°28'E). 2 **SP (od)**: 1993/16; 1993/17 (dry silver nitrate method); **PP**: 1993/18. **Remarks**: Although only one "holotype" is announced (page 40), two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

orbis Parduczia (FAURÉ-FREMIET, 1950) DRAGESCO, 1999 – Stapfia **66**: 54. **OT**: Marine sand; Cotonou, Benin (6°15'N, 2°20'E). **NP** (unspecific **od** on page 7): 1999/165. **Remarks**: Label (dated 1978) undesignated, thus "typification" according to paper. Protonym: *Geleia o*. FAURÉ-FREMIET, 1950 – Bull. biol. Fr. Belg. **84**. Nucleospecies (Tab. 6); genus misspelled *Parducia* and *Parduzia* by AESCHT (2001: 120, 293; 2003: 393).

ornata Nassula EHRENBERG, 1833 [Abh. Akad. Wiss. Berlin **1835**: 304] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 186. **OT**: Plankton and mud; Peterweiher, urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP (od)**: 1988/15, 1988/16 (wet silver nitrate method).

oscillatoriophaga Etoschophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 987. **OT**: Highly saline soil; Etosha National Park, lookout "Etosha", Namibia (18°50'S, 16°30'E). **HP (od)**: 2002/166; 2 **PP**: 2002/167, 2002/168 (all wet silver nitrate method). **Remarks**: Nucleospecies (Tab. 6).

oscitans Australocirrus BLATTERER & FOISSNER, 1988 – Stapfia **17**: 66. **OT**: Soil of a coastal forest; Royal National Park; south of Sidney, Australia (35°S, 151°E). 2 **SP** (unspecific **od** on page 4): 1989/79, 1989/80; PP: 1989/73. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6).

otti Dioplitophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 199. **OT**: Soil from *Moringa ovalifolia* (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). **HP (od)**: 2002/54; 3 **PP**: 2002/55, 2002/56, 2002/181. **Remarks**: Nucleospecies (Tab. 6).

ovalis Metopus KAHL, 1927 [Arch. Protistenk. **57**: 142] – FOISSNER (1998) Europ. J. Protistol. **34**: 222. **OT**: Grassland soil from shore of Lake Baringo, Kenya (0°45'N, 36°0'E). 3 **NP? (sd)**: 1997/106, 1997/107, 1997/108. **Remarks**: Neotypification not indicated (cp. page 196), but slides designated, although two mislabelled as "syntypes".

ovalis Prorodon DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 25. **OT**: Not given; Yaounde, Cameroun (3°52'N, 11°31'E). 3 **SP (sd)**: 2003/67, 2003/68, 2003/95. **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original author. No specific site mentioned.

ovata Grossglockneria FOISSNER, 1999 – J. Eukaryot. Microbiol. **46**: 39. **OT**: Leaf litter from Lackawanna State Forest (intersection of Pittston Road and Sassafras Hill Road); north of Scranton, Pennsylvania, USA (41°24'N, 75°40'W). 2 **SP (od)**: 1998/50 (wet silver nitrate method); 1998/52; 2 **PP**: 1998/51 (wet silver nitrate method); 1998/53. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

ovatus Metopus DRAGESCO & DRAGESCO-KERNÉIS, 1986 – Faune tropicale **26**: 387. **OT**: Brackish water; Cotonou, Benin (6°15'N, 2°20'E). 4 **SP? (sd)**: 2006/42, 2006/59 (both from 1977), 2006/68 (1978), 2006/57 (1979). **Remarks**: "Typification" not mentioned in the original paper, but all slides (each with one mark) from the same site labelled. Considered as junior subjective synonym of *M. propagatus* KAHL, 1926 by ESTEBAN, FENCHEL & FINLAY (1995, Arch. Protistenk. **146**: 139).

ovum Holophrya EHRENBERG, 1831 [Abh. Akad. Wiss. Berlin **1835**: 102] – FOISSNER, BERGER & KOHMANN (1994) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/94**: 322. **OT**: Windach stream near the sewage plant of the village of Eching, Bavaria, Germany (48°5'N, 11°7'E). 3 **NP? (sd)**: 1999/67, 1999/68, 1999/69 (all wet silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slides labelled; lo-

cality according to slides and reprint. Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

ovum Trachelius (EHRENBERG, 1831) EHRENBERG, 1838 – FOISSNER, BERGER, BLATTERER & KOHMANN (1995) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/95**: 208. **OT**: Eger stream, Fichtelgebirge, Bavaria, Germany (50°32'N, 14°8'E). 4 **NP? (sd)**: 1998/69, 1998/70, 1998/71, 1998/72. **Remarks**: "Typification" not mentioned in the original paper, but slides labelled; locality according to slides and reprint. Protonym: *Ophryocerca o.* EHRENBERG, 1831 – Abh. Akad. Wiss. Berlin **1831**: 112. Nucleospecies of *Trachelius* SCHRANK, 1803 (Tab. 6).

P

pachyoplites Arcuospathidium FOISSNER, 2003 – Acta Protozool. **42**: 146. **OT**: Saline coastal soil; surroundings of the village of Choroni, Henry Pittier National Park, north coast of Venezuela (10°15'N, 67°45'W). **HP (od)**: 2007/88; PP: 2007/90, 2007/88, 2007/89.

palaeformis Metopus KAHL, 1927 [Arch. Protistenk. **57**: 132] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 885. **OT**: Brown leaves from a streamlet in the rain forest; Nosy Be Island, Madagascar (13°21'S, 40°21'E). 3 **NP (od)**: 2002/576, 2002/577, 2002/578.

pampinaria Bakuella EIGNER & FOISSNER, 1992 – Europ. J. Protistol. **28**: 461. **OT**: Litter of vineleaves; village of Schrötten near Deutsch Goritz, Styria, Austria (46°47'N, 15°49'E). 2 **SP? (od)**: 1993/45 (two circled and four square marks, Fig. 23), 1993/46 (three circled marks). **Remarks**: Labels undesignated, but referring to describers (e.g. Fig. 23). Due to the nine marks and specimens in divisional morphogenesis included, they may also be considered as hapantophoronts (ICZN 1999 Art. 73.3). Currently subspecies rank, viz. *Bakuella* (*Bakuella*) *p. p.* according to BERGER (2006, Monogr. Biologicae **85**: 565).

pampinaria oligocirrata Bakuella FOISSNER, 2004 – Denisia **13**: 376. **OT**: Floodplain soil; Enns River near the mouth to the Danube River, Upper Austria (48°14'N, 14°30'E). **HP (od)**: 2007/599; PP: 2007/600. **Remarks**: Currently *Bakuella* (*Bakuella*) *p. o.* according to BERGER (2006, Monogr. Biologicae **85**: 567).

pannonicum Trachelophyllum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 155. **OT**: Saline grassland soil from margin of the Neusiedlersee, a soda lake in the "hell" region near Illmitz, Burgenland, Austria (47°45'N, 16°48'E). **HP (od)**: 2002/621; **PP**: 2002/622.

paoletti Platyophrya FOISSNER, 1997 – Biol. Fertil. Soils **25**: 326. **OT**: Soil of a gallery forest at Pozo Azul, about 10 km north of Puerto Ayacucho, Venezuela (5°51'N, 67°30'W). 2 **SP** (unspecific **od** on page 319): 1998/105; 1998/108 (dry silver nitrate method); 4 **PP**: 1998/106; 1998/107 (wet silver nitrate method); 1998/109, 1998/110 (two dry silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

papilliferum Epispathidium (KAHL, 1930) FOISSNER, 1984 – Stapfia **12**: 84. **OT**: Mosses on a wall in the palace grounds of Rauisch-Holzhausen, near Gießen, Germany (50°45'N, 8°53'E). **NP? (sd)**: 1984/65. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype". Protonym: *Spathidium p.* KAHL, 1930 – Arch. Protistenk. **70**: 386.

"*paradoxa Edaphospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 67. **OT**: Pruno-Fraxinetum floodplain forest soil; Müllerboden near Vienna, Austria (48°N, 16°42'E). **HP (od)**: 2007/105. 5 **PP**: 2007/101, 2007/102, 2007/103, 2007/104, 2007/105. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

paramarinum Uronema PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 93. **OT**: Sea ice; Weddell Sea, Antarctica (70°31'S, 7°59'W). **SP? (od)**: 2001/146. **Remarks**: Slide with one big circle, moreover "cells" are announced on the "holotype" in the paper.

paranotabilis Uroleptus FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 566. **OT**: Dung balls formed by a large *Scarabaeus*; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). **HP (od)**: 2002/383; 2 **PP**: 2002/384, 2002/385. **Remarks**: Currently *Caudiholosticha p.* according to BERGER (2006, Monogr. Biologicae **85**: 254).

parasalinarum Blepharisma DRAGESCO, 1996 – Cah. Biol. mar. **37**: 286. **OT**: Marine sand; Thau lagoon, Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). **HP (od)**: 1997/10 (one mark); **PP**: 1997/9 (two marks).

parduczi Uronema FOISSNER, 1971 – Arch. Protistenk. **113**: 35. **OT**: Streamlet Gaisbach; Wartberg ob der Aist, Upper Austria (48°19'N, 14°30'E). 3 **SP? (sd)**: 1974/298, 1974/299, 1974/300 (all dry silver nitrate method; last slide Fig. 2). **Remarks**: "Typification" not mentioned in the original paper; label not designated, but same original locality according to personal communication and an external sheet of paper (Fig. 1), thus symphoronts. 43 further slides with specimens collected in Stammersdorf, Burgenland.

parva Nassula KAHL, 1928 [Arch. Hydrobiol. **19**: 28] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 417. **OT**: Grass soil; margin of a geyser in the littoral of Lake Baringo, Kenya (0°28'N, 36°0'E). 3 **NP (od)**: 2002/529, 2002/530, 2002/531.

parvulus Notocephalus (CORLISS & SNYDER, 1986) PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 170. **OT**: Endopagial of mainly multiyear sea ice of the Weddell Sea, Antarctica (between 69°02'–70°21'S and 8°02'–8°53'W). **NP (od** without number): 2001/137. **Remarks**: Protonym: *Tachysoma parvulum* CORLISS & SNYDER, 1986 – Protistologica **22**: 44. Nucleospecies of *Notocephalus* PETZ, SONG & WILBERT, 1995 (Tab. 6).

patella Hausmanniella (KAHL, 1931) FOISSNER, 1984 – FOISSNER (1987) Zool. Beitr. N. F. **31**: 265. **OT**: Soil of a deciduous forest; Mt. Kado-yama, Amakusa Islands, Fukuregi, Japan (32°30'N, 130°0'E). 2 **NP? (sd)**: 1988/77 (wet silver nitrate method); 1988/78. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Colpoda p.* KAHL, 1931 – Tierwelt Dtl. **21**: 276.

patula Opisthonecta FOISSNER, 1975 – Protistologica **11**: 406. **OT**: Tank; Wartberg ob der Aist, Upper Austria (48°19'N, 14°30'E). 37 **SP (sd)**: 1975/163–199 (all dry silver nitrate method). **Remarks**: "Typification" not mentioned in the

original paper; slides "typified" on a sheet of paper, but not labelled. Location according to personal communication. Considered as junior subjective synonym of *O. henneguyi* by FOISSNER, BERGER & SCHAUMBURG (1999 Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 467).

pauciciliata Drepanomonas FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 237. **OT**: Soil of a spruce forest near Ulm/Donau, Germany (48°24'N, 10°0'E). **HP (od)**: 1988/156. **Remarks**: "Paratype" deposition indicated, but not performed.

paucicirrata Periholosticha FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 679. **OT**: *Quercus petraea-Carpinus betulus* (oak-hornbeam) forest soil; Kolmberg near Vienna, Lower Austria (47°58'N, 16°41'E). **HP (od)**: 2007/684; PP: 2007/688, 2007/687, 2007/686, 2007/685, 2007/681, 2007/678, 2007/680.

paucicirrata Perisincirra FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 628. **OT**: Mud from rock-pools; bank of the Shoalhaven River near the village of Bungonia, Australia (35°0'S, 149°0'E). **HP (od)**: 2002/726; 3 **PP**: 2002/727, 2002/728, 2002/729.

"*paucistriata Cultellothrix*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 290. **OT**: Soil; surroundings of Rio de Janeiro, viz. the shrub zone of the Restingha area about 1 km off the Atlantic sea coast, Brazil (23°30'S, 43°W). **HP (od)**: 2007/56; PP: 2007/56 (3 specimens figured), 2007/57, 2007/55. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

paucistriatum Bryophyllum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 340. **OT**: Savannah soil; Masei Mara National Reserve, Kenya (1°30'S, 34°55'E). **HP (od)**: 2002/523; 4 **PP**: 2002/524, 2002/525, 2002/526, 2002/527. **Remarks**: Currently *Neobryophyllum p.* (FOISSNER, AGATHA & BERGER, 2002) FOISSNER in FOISSNER & LEI, 2004 (Linzer biol. Beitr. **36**: 162).

pelagica Belonophrya ANDRÉ, 1914 [Revue suisse Zool. **22**: 182] – FOISSNER, BERGER & SCHAUMBURG (1999) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 124. **OT**: Eutrophic pond; Salzburg University, Austria (47°47'N, 13°40'E). 2 **NP (od)**: 1999/93, 1999/94. **Remarks**: Nucleospecies (Tab. 6).

pelagica Bursellopsis FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 375. **OT**: Höglwörther See, a small lake in southern Bavaria, Germany (47°49'N, 12°50'E). **HP (od)**: 2000/137; 3 **PP**: 2000/135, 2000/138, 2000/139.

pelagica Marituja GAJEWSKAJA, 1928 [C.R. Acad. Sci. U.R.S.S. 1928 (A): 476] – KRAINER (1988) Diss. Univ. Graz: 105. **OT**: Two clean groundwater ponds; Leibnitz, Styria, Austria (47°04'N, 15°26'E). 2 **NP? (od)**: 1992/17, 1992/18. **Remarks**: FOISSNER, BERGER & SCHAUMBURG (1999, Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 431) acknowledge the redescription in the unpublished thesis, but are likely unaware of "type" material and moreover state that a reinvestigation is needed. Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

pelagica Urotricha KAHL, 1935 [Tierwelt Dtl. **30**: 807] – FOISSNER & PFISTER (1997) Limnologica (Berlin) **27**: 325. **OT**: Plankton of an artificial pond; Salzburg University, Austria (47°48'N, 13°40'E). 8 **NP (od)**: 1998/95, 1998/96, 1998/97, 1998/98; 1998/100, 1998/102, 1998/103, 1998/104 (four wet silver nitrate method). **Remarks**: Five further slides deposited as "neotypes" (inv. no. 1992/35, 38, 39, 40, 42) by KRAINER are considered as vouchers, because they refer to his unpublished doctoral thesis. Moreover, he probably mixed the three species, *U. pelagica*, *U. apsheronica*, and *U. castalia* (cp. FOISSNER & PFISTER 1997, Limnologica (Berlin) **27**: 325).

pelagicum Strombidium KRAINER, 1991 – Europ. J. Protistol. **27**: 62. **OT**: Excavated groundwater ponds; Leibnitzer Feld, Styria, Austria (46°49'N, 15°32'E). **HP** (unspecific **od** on page 61): 1992/30; **PP**: 1992/31, 1992/36 (last slide labelled as *S. viride pelagica*). **Remarks**: Homonym to *S. viride* forma *pelagica* KAHL, 1932 [Tierwelt Dtl. **25**: 493], thus replaced by *S. pelagoviride* by KRAINER (1993, J. Eukaryot. Microbiol., IX Int. Congr. Protozool. Abstr.). For this replacement name KRAINER (1995, Lauterbornia **21**: 56) deposited a "neotype" (unspecific designation on page 40; inv. no. 1992/36) from the pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria; here considered as voucher, because this taxon is as junior subjective synonym of *Limnostrombidium pelagicum* (KAHL, 1932) KRAINER, 1995 according to FOISSNER, BERGER & SCHAUMBURG (1999 Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 574).

pellionellum Tachysoma (MÜLLER, 1773) BORROR, 1972 – FOISSNER & DIDIER (1982) Annls Stn biol. Besse **15**: 259. **OT**: Small river; Besse-en-Chandesse area, France (45°31'N, 2°56'E). **NP? (sd)**: 1981/94. **Remarks**: "Typification" not mentioned in the original paper, but slide designated, although mislabelled as "paratype" and *T. pellionella*. Protonym: *Trichoda pellionella* MÜLLER, 1773 – Vermium Terrestrium et Fluviatilium: 80. Nucleospecies of *Tachysoma* STOKES, 1887 (Tab. 6).

"*pelobia Apertospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 362. **OT**: Soil from a green area ("green river bed"); Chobe River near the Muchenje Safari Lodge, Botswana (18°S, 24°40'E). **HP (od)**: 2007/45; PP: 2007/42, 2007/43, 2007/44, 2007/41. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

pelobia Idiocolpoda FOISSNER, 1993 – Acta Protozool. **32**: 175. **OT**: Temporary stream; North Kohala, Hawaii, USA (20°04'N, 155°50'W). **HP (od)**: 1997/32; **PP**: 1997/33. **Remarks**: Nucleospecies (Tab. 6).

"*pelobium Arcuospathidium*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 164. **OT**: Mud from a temporary stream; North Kohala, Hawaii, USA (20°04'N, 155°50'W). **HP (od)**: 2007/51; PP: 2007/52, 2007/53, 2007/54. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3). New name for population II of *A. vermiforme* in FOISSNER (1984, see this species below).

penardi Bryophyllum KAHL, 1931 [Tierwelt Dtl. **21**: 185] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 350. **OT**: Brown leaves from a streamlet in the rain forest; Nosy Be Island, Madagascar (13°21'S, 40°21'E). 4 **NP (od)**:

2002/339, 2002/340, 2002/356, 2002/358. **Remarks**: Currently *Neobryophyllum p.* according to FOISSNER in FOISSNER & LEI, 2004 (Linzer biol. Beitr. **36**: 162).

pentadactyla Plagiocampa FOISSNER, AGATHA & BERGER, 2002, Denisia **5**: 539. **OT**: Field soil; Cotonou, Benin (6°15'N, 2°20'E). **HP (od)**: 2002/446; **PP**: 2002/447 (all wet silver nitrate method).

"*periarmata Armatospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 308. **OT**: Soil; Tachypogon savannah, surroundings town of Puerto Ayacucho, Venezuela (about 5°N, 68°W). **HP (od)**: 2007/69. 3 **PP**: 2007/69, 2007/70, 2007/71. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

perisincirra Tachysoma HEMBERGER, 1985 [Arch. Protistenk. **130**: 412] – BERGER, FOISSNER & ADAM (1984) Zool. Jb. Syst. **111**: 363. **OT**: Soil of an alpine meadow; Schlossalm Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). 2 **NP? (sd)**: 1986/99, 1986/100. **Remarks**: Neotypification not mentioned in the paper, but slides designated, although mislabelled as "holotype" and "paratype", respectively. Currently *Lamtostyla p.* according to BERGER & FOISSNER (1987, Zool. Jb. Syst. **114**: 216).

persalinus hexakineta Pseudocohnilembus FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 533. **OT**: Sedge girdle; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/89; 3 **PP**: 2002/90, 2002/91, 2002/92.

phoenicopterus Tracheloraphis (COHN, 1866) DRAGESCO, 1960 – FOISSNER & DRAGESCO (1996) Arch. Protistenk. **147**: 60 (including nomenclatural note as noun in apposition). **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP (od)**: 1998/34, 1998/35. **Remarks**: Protonym: *Trachelocerca p.* COHN, 1866 – Z. wiss. Zool. **16**: 262. Nucleospecies of *Tracheloraphis* DRAGESCO, 1960 (Tab. 6).

piger Amphileptus (VUXANOVICI, 1962) SONNTAG & FOISSNER, 2004 – J. Eukaryot. Microbiol. **51**: 672. **OT**: Plankton of Lake Traunsee, Austria (51'N, 13°47'E). 25 **NP (od)**: 2005/18–42. **Remarks**: Protonym: *Litonotus p.* VUXANOVICI, 1962 – Studii Cerc. (Biol. Anim.) **14**.

piliforme Enchelydium (KAHL, 1930) FOISSNER, 1984 – Stapfia **12**: 40. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher; urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP? (sd)**: 1984/24, 1984/25. **Remarks**: Protonym: *Spathidium p.* KAHL, 1930 – Arch. Protistenk. **70**: 389. Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes". One further slide (inv. no. 1981/9) labelled as protonym and likewise "paratype", thus listed in AESCHT (2001: 494), refers to FOISSNER & DIDIER (1982, Annls Stn biol. Besse **15**: 257) and was however, collected in the Besse-en-Chandesse area, France; needs clarification, also concerning the onymotope.

pituitosus Thylakidium FOISSNER, 1980 – Ber. Nat.-Med. Ver. Salzburg **5**: 97. **OT**: Alpine puddle between Tauernbach and Schareck, Glockner-Hochalpenstraße, Salzburg, Austria (47°04'N, 12°52'E). 2 **SP (sd)**: 1981/72 (opal blue staining; Fig. 6), 1981/73 (dry silver nitrate method; Fig. 7). **Remarks**: "Typification" not mentioned in the original paper, but two slides are labelled as "holotype" (Fig. 6, 7), because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Ending of species name corrected to *T. pituitosum* by FOISSNER (1993, Protozoenfauna **4/1**: 703).

plana Nivaliella FOISSNER, 1980 – Zool. Jb. Syst. **107**: 394. **OT**: Soil of an alpine mat near the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). **HP (sd)**: 1981/17 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slide designated, although mislabelled as "genotype". Nucleospecies (Tab. 6).

plancticola Pelagothrix FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 401. **OT**: Pond; near the village of Maria Sorg, surroundings of Salzburg City, Austria (47°48'N, 13°40'E). 5 **SP (od)**: 1999/88, 1999/89 (labelled as "*P. asymmetrica*"); 1999/91 (dry silver nitrate method and labelled as "*P. minuta*"); 1999/90, 1999/92 (two wet silver nitrate method and labelled as "*P. minuta*"). **Remarks**: Type deposition not mentioned in the original paper; but four slides are labelled as "neo/holotype", because of different preparation methods, thus symphoronts. Incorrectly labelled, since these two species have never been described.

platysoma Vorticella STOKES, 1887 [Proc. Am. phil. Soc. **24**: 249] – FOISSNER, BERGER & SCHAUMBURG (1999) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 486. **OT**: Lake Mondsee, Upper Austria (47°49'N, 13°23'E). 3 **NP? (sd)**: 1998/128; 1998/129, 1998/130 (two dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper and no formal redescription provided, although three original drawings of silver impregnated specimens are included, but slides designated as "neotypes"; locality according to labels.

plumipes Euplotoides (STOKES, 1884) BORROR & HILL, 1995 – DRAGESCO (2003) Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**: 10. **OT**: Mosses near Butaré, Rwanda (2°35'S, 29°4'E). 2 **NP?** (unspecific **od** on page 7): 2003/81 (1986, wet silver nitrate method); 2003/142 (1985, dry silver nitrate method). **Remarks**: Site according to slides from different years! Protonym: *Euplotes p.* STOKES, 1884 – Am. mon. microsc. J. **5**: 229.

"*plurinucleata Armatospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 317. **OT**: Soil from a secondary rain forest; surroundings of Tropical Hotel Manaus, Brazil (3°S, 60°W). **HP (od)**: 2007/64; PP: 2007/61, 2007/62, 2007/63, 2007/64. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

plurivacuolata Chlamydonellopsis BLATTERER & FOISSNER, 1990 – Arch. Protistenk. **138**: 99. **OT**: Windach stream near the sewage plant; village of Eching, Bavaria, Germany (48°5'N, 11°7'E). **HP (od)**: 1993/35; **PP**: 1993/36 (Fig. 16). **Remarks**: Nucleospecies (Tab. 6). For this species LYNN & FOISSNER (1994) used the genus name *Pseudochlamydonellopsis*, however, this is a nomen nudum without characterization and no formal combination has been performed (cp. Anonymuous [likely FOISSNER W.] 1995, Europ. J. Protistol. **31**: 401).

polynucleata Hemisincirra FOISSNER, 1984 – Stapfia **12**: 119. **OT**: Soil of a mesoxerophytic grassland (Mesobrometum); Althan near Bierbaum, Lower Austria (48°19'N, 16°0'E).

2 **SP** (unspecific **od** on page 8): 1984/96, 1984/95. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Currently *Hemiurosoma p.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 835). Since the genus has neuter gender, the species name has to be corrected to *H. polynucleatum* nom. corr.

polynucleatum Enchelydium FOISSNER, 1984 – Stapfia **12**: 37. **OT**: Soil of an intensely farmed field; Bierbaum, Tullnerfeld, Lower Austria (48°23'N, 15°56'E). **HP** (unspecific **od** on page 8): 1984/22. **Remarks**: Currently *Enchelys polynucleata* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 127).

polynucleatum Epispathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 312. **OT**: Soil and litter under an *Euphorbia* cushion; Namib Escarpment in the desert and succulent steppe between the towns of Goageb and Aus, Namibia (26°40'S, 16°50'E). **HP** (**od**): 2002/281; 3 **PP**: 2002/282, 2002/283, 2002/284.

polyvacuolata Pseudochilodonopsis FOISSNER & DIDIER, 1982 – Annls Stn biol. Besse **15**: 258. **OT**: Submerse mooses of a streamlet; near Biological Station in Besse-en-Chandesse, France (45°31'N, 2°56'E). 2 **SP** (**sd**): 1981/44 (dry silver nitrate method); 1981/45. **Remarks**: "Typification" not mentioned in the original paper, but two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

polyvacuolatus Dileptus FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 179. **OT**: Soil of a paddy field near Kumamoto, Japan (32°47'N, 130°41'E). **HP** (**od**): 1988/96; **PP**: 1988/97.

potamophilus Thigmogaster FOISSNER, 1988 – Hydrobiologia **162**: 30. **OT**: River Drau between Aßling and Lienz, Eastern Tyrol, Austria (46°49'N, 12°45'E). **HP** (**od**): 1988/168 (Fig. 15); **PP**: 1988/169.

procera Amphisiella FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 670. **OT**: Soil under *Aloe dichotoma*; surroundings of the Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°25'S, 18°20'E). **HP** (**od**): 2002/380; **PP**: 2002/381.

procerum Spathidium KAHL, 1930 [Arch. Protistenk. **70**: 380] – FOISSNER (1984) Stapfia **12**: 71. **OT**: Soil of a conventionally farmed field; Bierbaum, Lower Austria (48°23'N, 15°56'E). **NP?** (**sd**): 1984/51. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype".

procerus Pseudouroleptus BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 195. **OT**: Soil of a meadow; near the city of Salzburg, Austria (47°48'N, 13°02'E). **HP** (unspecific **od** on page 195): 1986/61; **PP**: 1986/62.

procumbens Epistylis ZACHARIAS, 1897 [ForschBer. biol. Stn Plön **5**: 7] – FOISSNER, BERGER & SCHAUMBURG (1999) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 527. **OT**: Höglwörther See, a small lake in southern Bavaria, Germany (47°49'N, 12°50'E). 4 **NP?** (**sd**): 1998/131, 1998/132, 1998/133, 1998/134 (all dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slide designated; locality according to slides restricted herein.

protectissima Parafurgasonia (PENARD, 1922) FOISSNER, 1989 – Biodiversity and Conservation **8**: 348. **OT**: Mud from granitic rock-pools on the Kruger Tablets; Kruger National Park, Republic of South Africa (23°50'S, 31°30'E). 4 **NP** (**od**): 1999/19, 1999/20 (both wet silver nitrate method); 1999/21, 1999/22. **Remarks**: Protonym: *Nassula p.* PENARD, 1922 – Études Infusoires: 88. Three slides mislabelled as "holotype or paratypes".

psammophilus Planicoleps DRAGESCO & DRAGESCO-KERNÉIS, 1991 – Europ. J. Protistol. **26**: 217. **OT**: Interstitial in the sands, at slight depth (0.5-1 m); Bujumbura and up to 80 km southwards, along the east shore of Lake Tanganyika, Burundi (3°19'S, 29°19'E). 3 **SP** (**sd**): 2003/71 (1985), 2003/137 (1986); 2003/144 (1985, dry silver nitrate method). **Remarks**: "Typification" not mentioned, but all labels unspecifically refer to this paper; symphoronts because of different preparation methods and two sampling years. Nucleospecies (Tab. 6).

psenneri Urotricha SONNTAG & FOISSNER, 2004 – J. Eukaryot. Microbiol. **51**: 670. **OT**: Plankton of Lake Traunsee, Austria (51'N, 13°47'E). **HP** (**od**): 2005/10; 17 **PP**: 2005/11 – 16 (all wet silver nitrate method); 2005/17, 2005/34–42.

pseudochilodon Bryometopus KAHL, 1932 [Tierwelt Dtl. **25**: 434] – FOISSNER, ADAM & FOISSNER I. (1982) Protistologica **18**: 212. **OT**: Alpine soil; Hohe Tauern, Salzburg, Austria (about 47°N, 13°E). **NP?** (**sd**): 1981/74. **Remarks**: Neotypification not mentioned, but slide designated, although mislabelled as "paratypes". No specific site given. Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

pseudocinctum Spirostrombidium (WANG, 1934) PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 123. **OT**: Endopagial of pancake and multiyear sea ice; Weddel Sea, Antarctica (between 69°26'–70°24'S and 06°18'–07°19'W). **NP?** (**sd**): 2001/134. **Remarks**: Neotypification neither mentioned on page 7 nor 123, but slide designated. Protonym: *Strombidium pseudocinctum* WANG, 1934 – Rep. Mar. Biol. Ass. China **3**: 62.

pseudofurcata Urotricha KRAINER, 1995 – Lauterbornia **21**: 40. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). 2 **SP** (unspecific **od** on page 40): 1992/11 (Fig. 25), 1992/37. **Remarks**: Slides mislabelled as "*U. parafurcata*" and incorrectly designated as "neotypes".

pulchra Bardeliella FOISSNER, 1984 – Stapfia **12**: 106. **OT**: Soil of a meadow in the so-called "hell"; Seewinkel, Burgenland, Austria (47°49'N, 16°48'E). 4 **SP** (unspecific **od** on page 8): 1984/79, 1984/80; 1984/81, 1984/82 (two dry silver nitrate method). **Remarks**: Four slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6); *Bardeliella* is the nucleogenus of Bardeliellidae FOISSNER, 1984 (Tab. 7).

pulchra Paraenchelys FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 104. **OT**: Highly saline soil; Etosha National Park, Wolfsnes water-hole near the margin of the Etosha Pan, Namibia (19°S, 15°50'E). **HP** (**od**): 2002/50; 3 **PP**: 2002/51, 2002/52, 2002/53.

pulchra Tricoronella BLATTERER & FOISSNER, 1988 – Stapfia **17**: 59. **OT**: Soil of a bushland; Brisbane Waters National

Park, north of Sidney, Australia (33°28'S, 151°20'E). **HP** (unspecific **od** on page 4): 1989/72; **PP**: 1989/73. **Remarks**: Nucleospecies (Tab. 6).

pusillum Tintinnidium ENTZ, 1909 [Arch. Protistenk. **15**: 118] – FOISSNER & WILBERT (1979) J. Protozool. **26**: 94. **OT**: Pond (Poppelsdorfer Weiher); Bonn, Germany (50°44'N, 7°6'E). 2 **NP? (sd)**: 1993/64, 1993/65. **Remarks**: "Typification" not mentioned in the original paper, but slides designated, although latter one mislabelled as "paratype".

pusillus Microthorax ENGELMANN, 1862 [Z. wiss. Zool. **11**: 381] – LEITNER & FOISSNER (1997) Linzer biol. Beitr. **29**: 350. **OT**: Activated sludge of two stage sewage-treatment plant; Siggerwiesen, Salzburg, Austria (47°51'N, 13°0'E). 4 **NP (od)**: 1997/17 (five marks), 1997/18 (10 marks); 1997/19 (nine marks), 1997/20 (four marks, dry silver nitrate method). **Remarks**: The latter three slides undesignated, but marked and announced. One slide mislabelled as "paratype" (inv. no. 1981/49) probably refers to FOISSNER (1979, Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **188**: 30). Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

pustulata Stylonychia (MÜLLER, 1786) EHRENBERG, 1835 – WIRNSBERGER, FOISSNER & ADAM (1985) J. Protozool. **32**: 262. **OT**: Lake Mondsee; Upper Austria (47°49'N, 13°23'E). 3 **NP? (sd)**: 1986/31, 1986/32, 1986/33. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Kerona p.* MÜLLER, 1786 – Animalc. infus.: 246. Currently *Tetmemena p.* according to EIGNER (1999, Europ. J. Protistol. **35**: 44, 47).

putrinus Pseudocohnilembus (KAHL, 1928) FOISSNER & WILBERT, 1981 – J. Protozool. **28**: 291. **OT**: Soil; Hohe Tauern, Salzburg, Austria (about 47°N, 13°E). 2 **NP? (sd)**: 1981/63; 1981/64 (dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "paratypes". Protonym: *Lembus p.* KAHL, 1928 – Arch. Hydrobiol. **19**: 121.

pyriformis Perispira WIRNSBERGER, FOISSNER & ADAM, 1984 – Arch. Protistenk. **128**: 306. **OT**: Edge of a pasture pool; Schlossalm near Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). 2 **SP (od)**: 1986/17, 1986/18. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

Q

quadricornutus Onychodromus FOISSNER, SCHLEGEL & PRESCOTT, 1987 – J. Protozool. **34**: 150. **OT**: Unknown; isolated from a freshwater aquarium in Boulder, Colorado, USA (40°00'N, 105°16'W). **HP (od)**: 1986/95; 3 **PP**: 1986/96, 1986/97, 1986/98. **Remarks**: Currently *Styxophrya quadricornuta* and nucleospecies of the latter genus according to FOISSNER, MOON VAN DER STAAY, VAN DER STAAY, HACKSTEIN, KRAUTGARTNER & BERGER (2004, Europ. J. Protistol. **40**: 279; Tab. 6).

quadrinucleata Erimophrya FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 671 **OT**: *Pinus nigra* forest soil; Stampftal near Vienna, Austria (47°53'N, 16°02'E). **HP (od)**: 2007/678; **PP**: 2007/679, 2007/680, 2007/683.

quadrinucleata Kahliella DRAGESCO, 2003 – Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**: 23. **OT**: Soil in the garden; University of Butaré, Rwanda (2°35'S, 29°4'E). 2 **SP** (unspecific **od** – incorrectly as "neotypes" – on page 7): 2003/91, 2003/136. **Remarks**: Type not specified on the labels, but according to publication.

quadrinucleata Steinia DRAGESCO & NJINÉ, 1971 [AnnlsFac. Sci. Univ. féd. Cameroun **7-8**: 129] – FOISSNER (1984) Stapfia **12**: 118. **OT**: Soil of a conventionally farmed field; left of the Hellbrunner-Allee, urban area of Salzburg, Austria (47°48'N, 13°04'E). 2 **NP? (sd)**: 1984/93, 1984/94. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Currently *Cyrtohymena q.* according to FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 239; classified in subgenus (Tab. 5) according to FOISSNER (2004, Denisia **13**: 370), although not formally transferred.

quadrinucleata Uroleptoides FOISSNER, 1984 – Stapfia **12**: 114. **OT**: Soil; Salesen-Alm am Stubnerkogel near Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). 2 **SP** (unspecific **od** on page 8): 1982/59, 1984/90 (as *U. quadrinucleatus*). **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Currently *Hemiamphisiella q.* according to FOISSNER (1988, Stapfia **17**: 122).

R

rariseta Hemisincirra FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 865. **OT**: Soil from *Aloe dichotoma* forest; Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°30'S, 18°25'E). **HP (od)**: 2002/431; 2 **PP**: 2002/429, 2002/430.

rarisetum Paragonostomum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 831. **OT**: Soil from *Aloe dichotoma* forest; Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°30'S, 18°25'E). **HP (od)**: 2002/429; 4 **PP**: 2002/415, 2002/430, 2002/431, 2002/432.

regium Epispathidium FOISSNER, 1984 – Stapfia **12**: 82. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel near Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). **HP** (unspecific **od** on page 8): 1984/8 (Fig. 13). **Remarks**: Nucleospecies (Tab. 6).

rehwaldi Strombidium PETZ & FOISSNER, 1992 – J. Protozool. **39**: 165. **OT**: River Amper; about 2 km downriver from the sewage plant at Geiselbullach, east of Fürstenfeldbruck, Bavaria, Germany (48°13'N, 11°21'E). 2 **SP (od)**: 1993/55, 1993/56; **PP**: 1993/57. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

reniforme Cryptochilum PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 84. **OT**: Sea ice; Weddell Sea, Antarctica (70°24'S, 6°18'W). **SP? (od)**: 2001/134. **Remarks**: Slide with one big circle, moreover "cells" are announced for the "holotype" in the paper.

reticulata Urosomoida FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 771. **OT**: Litter from *Combretum imberbe* (leadwood tree); foot of the Brandberg, an inselberg at the east margin of the central Namib Desert, Namibia (21°S, 14°35'E). **HP (od)**: 2002/219; 3 **PP**: 2002/220, 2002/221, 2002/222.

revoluta Drepanomonas PENARD, 1922 [Études Infusoires: 169] – FOISSNER (1987) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 242. **OT**: Field soil near Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). **NP? (sd)**: 1986/13. **Remarks**: Neotypification not mentioned in the original paper, but slide designated as "neotype". One further slide mislabelled as "paratype" (inv. no. 1981/47, dry silver nitrate method) needs clarification.

rex Loxodes DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 16. **OT**: Freshwater with sand; Yaounde, Cameroun (3°52'N, 11°31'E). 5 **SP (sd)**: 2003/46, 2003/47, 2003/109, 2003/112; 2003/118 (haematoxilin staining). **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original author. Sampling year 1969, site according to slide, no biotope indicated.

ristoi Urotricha KRAINER, 1995 – Lauterbornia **21**: 41. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). 2 **SP** (unspecific **od** on page 40): 1992/4 (Fig. 26), 1992/11 (Fig. 25). **Remarks**: One slide labelled as "n. sp." (Fig. 26), the other as "holo-, paratype" (Fig. 25) violating Art. 73.2 (ICZN 1999), thus symphoronts.

robusta Lacrymaria VUXANOVICI, 1959 [Revue Biol. **4**] – FOISSNER (1987) Limnologica (Berlin) **27**: 195. **OT**: Eger stream; Fichtelgebirge, Bavaria, Germany (50°32'N, 14°8'E). 2 **NP (od)**: 1998/69, 1998/70.

roquei Frontonia DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 51. **OT**: Not given; Yaounde, Cameroun (3°52'N, 11°31'E). **HP? (sd)**: 2002/904 (wet silver nitrate method, dated 1970). **Remarks**: "Typification" not mentioned, but labels unspecifically refer to this paper; one mark. Redescribed by DRAGESCO & DRAGESCO-KERNÉIS (1986, Faune tropicale **26**: 327). Since the genus has feminine gender, the species name was corrected to *F. roqueae* by FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 504).

rosea Naxella (TUCOLESCO, 1962) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 441. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°55'S, 15°55'E). 3 **NP (od)**: 2002/64, 2002/65 (wet silver nitrate method); 2002/66. **Remarks**: Protonym: *Nassula r.* TUCOLESCO, 1962 – Annls Spéléol. **17**.

rostrata Woodruffia KAHL, 1931 [Tierwelt Dtl. **21**: 285] – FOISSNER (1987) Zool. Beitr. N. F. **31**: 227. **OT**: Strongly haline coastal soil; Santo Vicente, Cap Verde Islands, Atlantic Ocean (about 17°N, 25°W). 2 **NP? (sd)**: 1988/63 (wet silver nitrate method), 1988/64. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Nucleospecies of *Woodruffia* KAHL, 1931 and subsequently nucleogenus of Woodruffiidae GELEI, 1954 (Tab. 6, 7).

rostratum Loxophyllum COHN, 1866 [Z. wiss. Zool. **16**: 280] – PETZ, SONG & WILBERT (1995) Stapfia **40**: 55. **OT**: Endopagial of pancake and multiyear sea ice of the Weddell Sea, Antarctica (68°38'–71°00'S, 06°04'–12°12'W). **NP (od** without number): 2001/139.

rouxi Plagiocampa KAHL, 1926 [Arch. Protistenk. **55**: 319] – FOISSNER (1984) Stapfia **12**: 22. **OT**: Soil of a damp willow floodplain (*Phalaris arundinacea-Urtica dioica*); Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). **NP? (sd)**: 1984/9. **Remarks**: Neotypification not mentioned in paper (see page 8), but slide designated, although mislabelled as "paratype".

rubescens Notohymena BLATTERER & FOISSNER, 1988 – Stapfia **17**: 71. **OT**: Bark overgrown with lichens and mosses of a secondary pine forest near Innisfail; Chairns, Australia (17°32'S, 146°2'E). **HP** (unspecific **od** on page 88): 1989/81; **PP**: 1989/82. **Remarks**: Nucleospecies (Tab. 6).

rubra Metaurostylopsis SONG & WILBERT 2002 – Acta Protozool. **41**: 52. **OT**: Rock pool and littoral; Potter Cove, King George Island, Antarctica (62°14'S, 58°40'W). **HP** (unspecific **od** on page 24): 2001/5. **Remarks**: "Paratypes" deposited in the Laboratory of Protozoology, College of Fisheries, Ocean University of Qingdao, China.

rubra Pseudokeronopsis (EHRENBERG, 1835) BORROR & WICKLOW, 1983 – WIRNSBERGER, LARSEN & UHLIG (1987) Europ. J. Protistol. **23**: 77. **OT**: Unknown; South Africa. 2 **NP (od)**: 1986/42, 1986/43. **Remarks**: Two further slides labelled as "paratypes" (inv. no. 1984/86, 1984/87, samples in a seawater aquarium originating from Porto Rosz in Slowenia), refer to the publication of FOISSNER (1984, Stapfia **12**: 111), where neotypification is not mentioned on page 8 referring to deposition. This species is now considered as misidentified *P. carnea* (cp. reference above: 86; BERGER 2006, Monogr. Biologicae **85**: 931). Protonym: *Oxytricha rubra* EHRENBERG, 1835 – Abh. Akad. Wiss. Berlin **1835**: 164. Nucleospecies of *Pseudokeronopsis* BORROR & WICKLOW, 1983 (Tab. 6), which is the nucleogenus of Pseudokeronopsidae BORROR & WICKLOW, 1983 (Tab. 7).

rubripuncta Oxytricha BERGER & FOISSNER, 1987 – Zool. Jb. Syst. **114**: 222. **OT**: Soil of an uncultivated grassland; Golan Hills, Israel (33°0'N, 35°45'E). **HP** (unspecific **od** on page 195): 1986/73; **PP**: 1986/74.

rugosa Remanella KAHL, 1933 – DRAGESCO (1965) Cah. Biol. mar. **6**: 377. **OT**: Marine sand; Aber de Roscoff, France (48°44'N, 3°59'W). **NP? (sd)**: 2003/105 (labelled as *R. rugosa*, sampling year 1962). **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original author. DRAGESCO established a *R. unicorpusculata* for *R. rugosa* var. *unicorpusculata* KAHL, 1933 (Tierwelt Nord- und Ostsee **II. c3**: 65) "due to misinterpretation of article 45g of the IZCN" (cp. FOISSNER 1996, Europ. J. Protistol. **32**: 235). Moreover FOISSNER cited the taxon as *R. rugosa* var. *unicorpusculata*, viz. as infrasubspecific rank violating Art. 45.6.4 (ICZN 1999). Thus, the taxon should have subspecies rank; supported by the label of DRAGESCO, the specimens are considered as *R. rugosa*. Since the unavailable genus was revalidated in the FOISSNER'S publication, nomenclatural authorship is complicated, viz. a new combination is not supported by ICZN (1999 Art. 51.3, 50.1, Rec. 50C, 51F).

runcina Gastronauta WILBERT, 1974 – Protistologica **7**: 358. **OT**: Eutrophic ponds; Bonn, Germany (50°44'N, 7°6'E). 2 **SP (sd)**: 1997/40 (Fig. 27), 1997/41. **Remarks**: "Typification" not mentioned in the original paper, but slides designated (e.g. Fig. 27). Considered as junior subjective synonym of *G. membranaceus* by FOISSNER (2001, Protozo-

ol. Monogr. **1**: 66), who reinvestigated and deposited the original slides, mislabelled as one "holo- and syntype" each violating Art. 73.2 (ICZN 1999).

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sagitta Trachelocerca (MÜLLER, 1786) EHRENBERG, 1840 – FOISSNER & DRAGESCO (1996) Arch. Protistenk. **147**: 46. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP? (od)**: 2002/811, 2002/812. **Remarks**: "Neotypes" also unspecifically mentioned by DRAGESCO (2002, Linzer biol. Beitr. **34**) on page 1547 referring to the description on page 1553. Since the year (of collection?) is given with 1999 on the label, the originally intended slides have possibly not been deposited. Protonym: *Vibrio sagitta* MÜLLER, 1786 – Animalc. infus. Nucleospecies of *Trachelocerca* EHRENBERG, 1840 (Tab. 6), which is the nucleogenus of Trachelocercidae KENT, 1881 (Tab. 7).

salinarum Holophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 537. **OT**: Highly saline soil; Etosha National Park, road to the Halali rest camp, Namibia (18°55'S, 16°25'E). **HP (od)**: 2002/206; **PP**: 2002/209 (both wet silver nitrate method).

salmastra Frontonia DRAGESCO & DRAGESCO-KERNÉIS, 1986 – Faune tropicale **26**: 319. **OT**: Brackish water; Cotonou, Benin (6°15'N, 2°20'E. **HP (sd)**: 2002/889 (wet silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but label refers to this paper; one mark; site according to slide.

salmastra Pleuronema DRAGESCO & DRAGESCO-KERNÉIS, 1986 – Faune tropicale **26**: 359. **OT**: Brackish water; Cotonou, Benin (6°15'N, 2°20'E). **HP? (sd)**: 2002/875. **Remarks**: "Typification" not mentioned in the original paper, but label refers to this paper, one mark; site likely erroneously given as "Yaounde".

saltans Pseudoplatyophrya FOISSNER, 1988 – Stapfia **17**: 105. **OT**: Gum tree (*Ficus* sp.) litter; Nairobi Arboretum, Kenya (2°20'S, 36°50'E). 2 **SP** (unspecific **od** on page 88): 1989/26; 1989/28 (dry silver nitrate method); **PP**: 1989/27 (dry silver nitrate method). **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

sapropelica Balanonema FOISSNER, 1978 – Protistologica **14**: 385. **OT**: Puddle below the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). **HP? (sd)**: 1981/54. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Site on label perhaps inadvertently given as "Gastein". Genus needs nomenclatural validation (cp. AESCHT 2001: 29).

sapropelicus Ovalorhabdos FOISSNER, 1984 – Stapfia **12**: 33. **OT**: Sapropel of River Drau near barrage Amlach; Lienz, Eastern Tyrol, Austria (46°49'N, 12°45'E). 3 **SP** (unspecific **od** on page 8): 1984/16; 1984/17, 1984/18 (wet silver nitrate method). **Remarks**: Three slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Slides labelled as *O. sapropelica*, which is correct according to ICZN (1999 Art. 31.2)) since the genus has feminine gender (cp. AESCHT 2001: 291). Nucleospecies (Tab. 6).

schiffmanni Orthokreyella FOISSNER, 1984 – Stapfia **12**: 99. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel near Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). **HP** (unspecific **od** on page 8): 1984/73 (incorrectly labelled as "genotype"). **Remarks**: According to page 7 the site would be Haitzinger-Alm (Rumicetum alpini), Bad Hofgastein. Nucleospecies (Tab. 6).

schulzei Trachelolophos (DRAGESCO, 1954) DRAGESCO, 1999 – Annls Sci. nat. **1**: 6. **OT**: Marine sand; Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2 **NP (od)**: 1998/22, 1998/23. **Remarks**: Unspecifically designated as type specimens, but in fact neophoronts; labels unspecifically refer to this paper. Year of first description incorrectly given as 1960 in the paper. Protonym: *Trachelocerca s.* DRAGESCO, 1954 – Trav. Stn. biol. Roscoff (N. S.) **12**: 118.

semiciliatum Tintinnidium (STERKI, 1879) KENT, 1881 – BLATTERER & FOISSNER (1990) Arch. Protistenk. **138**: 102. **OT**: Windach stream near the sewage plant; village of Eching, Bavaria, Germany (48°5'N, 11°7'E). 2 **NP (od)**: 1993/37, 1993/38. **Remarks**: Only one slide announced. Protonym: *Tintinnus semiciliatus* STERKI, 1879 – Z. wiss. Zool. **32**: 460. Currently nucleospecies of the subgenus *Semitintinnidium* according to AGATHA & STRÜDER-KYPKE, 2007 (Europ. J. Protistol. **43**: 58; Tab. 6).

seppelti etoschense Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 229. **OT**: Soil from *Sporobolus* grass girdle; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/1 (Fig. 34); **PP**: 2002/2. **Remarks**: Unmentioned "paratypes" are also included in the first slide (Fig. 31).

seppelti Spathidium PETZ & FOISSNER, 1997 – Polar Record **33**: 313. **OT**: Algal ornithogenic soil near an Adélie penguin roockery; north coast of Shirley Island, Windmill Islands, continental Antarctica (66°17'S, 110°29'E). 2 **SP (od)**: 2000/147 (Fig. 24), 2000/148. **Remarks**: Labelled unspecifically as "types" with 10 (e.g. Fig. 24) and four marks, respectively, thus symphoronts. Currently subspecies rank according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 229).

sepulcreti Vorticella FOISSNER & SCHIFFMANN, 1975 – Protistologica **11**: 422. **OT**: Vase of flowers on the cementery; Haus im Ennstal; Styria?, Austria (47°24'N, 13°46'E). 5 **SP (sd)**: 1975/51, 1975/52, 1975/53, 1975/54, 1982/61 (all dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; slides "typified" on a sheet of paper, but not labelled, except the latter which is designated as "holotype", but with three marks. Different deposition years, but same sampling year and location.

serpens Protospathidium (KAHL, 1930) FOISSNER, 1981 – XU & FOISSNER (2005) J. Eukaryot. Microbiol. **52**: 309. **OT**: Soil under a temporary pond in the town of Salzburg, Austria (47°48'N, 13°40'E). 3 **NP (od)**: 2007/133, 2007/134, 2007/135. **Remarks**: Protonym: *Spathidium s.* KAHL, 1930 – Tierwelt Dtl. **18**: 158.

serratus Tracheloraphis RAIKOV & KOVALEVA, 1968 [Acta Protozool. **6**.] – DRAGESCO (2002) Linzer biol. Beitr. **34/2**: 1558. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/821, 2002/822. **Remarks**: Since the genus has femi-

nine gender, the species name was corrected to *T. serrata* (cp. FOISSNER & DRAGESCO 1996, Arch. Protistenk. **147**: 85).

setensis Trachelolophos DRAGESCO, 1996 – Cah. Biol. mar. **37**: 262. **OT**: Marine sand; Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2 **SP** (**od**): 1997/1 (two marks, Fig. 17), 1997/2 (one mark, Fig. 18). **Remarks**: DRAGESCO (1999, Annls Sci. nat. **1**: 2) unspecifically announced "neotypes"; seven untypified slides deposited in 1998 (2) and 2002 (5) are, however, considered as voucher.

setosa Homalogastra KAHL, 1926 [Arch. Protistenk. **55**: 341] – FOISSNER, ADAM & FOISSNER I. (1982) Zool. Jb. Syst. **109**: 444. **OT**: Soil; village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **NP?** (**sd**): 1981/56 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but slide designated, although mislabelled as "paratype". Location according to slide. Nucleospecies (Tab. 6).

seyrli Holophrya FOISSNER, 1997 – Limnologica (Berlin) **27**: 213. **OT**: Zinnbach stream; Bavaria, Germany (50°19'N, 12°13'E). **HP** (**od**): 1998/54; **PP**: 1998/55 (both wet silver nitrate method).

sigmoidea Holosticha FOISSNER, 1982 – Arch. Protistenk. **126**: 53. **OT**: Soil of a snow pocket near the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). **HP** (**sd**): 1982/56; **PP**: 1984/98. **Remarks**: "Typification" not mentioned in the original paper, but slides designated; although they were deposited in different years, they are from the same site. Currently *Anteholosticha s.* according to BERGER (2003, Europ. J. Protistol. **39**: 377).

"*similis Apertospathula*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 339. **OT**: Soil from a green portion ("green river bed"); Chobe River near the Muchenje Safari Lodge, Botswana (18°S, 24°40'E). **HP** (**od**): 2007/26; PP: 2007/27, 2007/23, 2007/24. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

similis Dileptus FOISSNER, 1995 – Arch. Protistenk. **145**: 43. **OT**: Soil; near the ranch house "La Casona"; Santa Rosa National Park, Costa Rica (10°50'N, 85°38'W). **HP** (**od**): 1997/98; **PP**: 1997/99.

similis Holosticha STOKES, 1886 [Proc. Am. phil. Soc. **23**: 26] – FOISSNER & DIDIER (1982) Annls Stn biol. Besse **15**: 260. **OT**: Submerse mosses of a streamlet; Biological Station Besse-en-Chandesse, France (45°31'N, 2°56'E). **NP?** (**sd**): 1981/88. **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype".

similis Perisincirra FOISSNER, 1982 – Arch. Protistenk. **126**: 94. **OT**: Field soil; near Grafenwörth, Lower Austria (48°24'N, 15°47'E) or Zwentendorf, Lower Austria (48°21'N, 15°54'E). **HP** (**sd**): 1981/92. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Hemiurosoma s.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 835).

similis Vorticella STOKES, 1887 [Am. mon. microsc. J. **8**: 144] – FOISSNER (1981) Protistologica **17**: 40. **OT**: Soil; Hochtor at the Großglockner-Hochalpenstraße, Hohe Tauern (47°04'N, 12°50'E) and soil of an alpine pasture; Guttal at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°10'N, 12°49'E). **NP?** (**sd**): 1981/66. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Location according to FOISSNER (1981: 18).

similis Woodruffia FOISSNER, 1980 – Zool. Jb. Syst. **107**: 404. **OT**: Soil of an alpine mat; Hochtor at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°04'N, 12°50'E). 3 **SP** (**sd**): 1981/21, 1981/22; 1981/23 (dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper; ; but three slides are labelled as "holotype", because of different preparation methods, thus symphoronts. Currently *Platyophrya s.* according to FOISSNER (1987, Progr. Protistol. **2**: 126).

simonsbergeri Urotricha FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 324. **OT**: Pelagial of a eutrophic, artificial pond at Salzburg University, Austria (47°48'N, 13°40'E). **HP** (**od**): 1999/79; 4 **PP**: 1999/80, 1999/81, 1999/82; 1999/83 (wet silver nitrate method).

simplex Geleia FAURÉ-FREMIET, 1951 – DRAGESCO (1999) Stapfia **66**: 10. **OT**: Marine sand; Dodomey-Akpakpa near Cotonou, Benin (6°15'N, 2°20'E). 2 **NP?** (unspecific **od** on page 7): 1999/151, 1999/150. **Remarks**: Different localities and sampling years: Roscoff 1965 (2 marks, first slide) and Cotonou 1978 (3 marks). Labels undesignated, thus "typification" according to paper; as two varieties are mentioned taxonomy of this species needs clarification. Since the unavailable genus was revalidated by FOISSNER in COOMBS et al. (1998, The karyorelictids: 308), nomenclatural authorship is complicated, viz. a new combination is not supported by ICZN (1999 Art. 51.3, 50.1, Rec. 50C, 51F).

simplex Kahliella (HORVÁTH, 1934) CORLISS, 1960 – BERGER & FOISSNER (1987) Zool. Jb. Syst. **114**: 201. **OT**: Soil of a pasture near Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). 4 **NP?** (**sd**): 1986/57, 1986/58, 1986/59, 1986/60. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Protonym: *Kahlia s.* HORVÁTH, 1934 – Acta biol. hung. **3**: 60.

simplex Paragonostomum FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 674 **OT**: *Pinus nigra* forest soil; Stampftal near Vienna, Austria (47°53'N, 16°02'E). **HP** (**od**): 2007/681. 6 **PP**: 2007/678, 2007/679, 2007/680, 2007/681 (figured), 2007/682.

smalli Actinobolina HOLT, LYNN & CORLISS, 1973 [Protistologica **9**: 521] – KRAINER (1988) Diss. Univ. Graz: 101. **OT**: Excavated groundwater ponds near Graz, Styria, Austria (47°04'N, 15°25'E). 2 **NP?** (**sd**): 1992/10, 1992/11 (Fig. 25). **Remarks**: FOISSNER, BERGER & SCHAUMBURG (1999, Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 115) accepted the redescription on the basis of unpublished data of KRAINER and further refer to figures from an unpublished manuscript of him. "Typification" not mentioned in the paper, but slides labelled and designated by KRAINER.

smithi Pleuroplitoides FOISSNER, 1996 – Acta Protozool. **35**: 103. **OT**: *Chorisodontium aciphyllum* moss; Signy Island, South Orkney Islands, Antarctica (60°40'S, 45°40'W). 2 **SP** (unspecific **od** on page 97): 1997/61 (dry silver nitrate method); 1997/63, 1997/64; 3 **PP**: 1997/62 (dry silver nitrate method); 1997/65. **Remarks**: Three slides are labelled as "holotype" (the second protargol one perhaps inadvertently), because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6).

sociale Platynematum (PENARD, 1922) FOISSNER, BERGER & KOHMANN, 1994 – FOISSNER (1997) Limnologica (Berlin) **27**: 223. **OT**: Zinnbach stream; Fichtelgebirge, Bavaria, Germany (50°19'N, 12°13'E). 2 **NP** (**od**): 1997/119, 1997/120. **Remarks**: Location according to slides and reprint of FOISSNER (1997). "Neotypes" already announced with a different locality (clean, periodically brook in the Fichtelgebirge near der Röslau, Bavaria, Germany), but not deposited by FOISSNER, BERGER & KOHMANN (1994, Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/94**: 256). Protonym: *Uronema s*. PENARD, 1922 – Études Infusoires. Nucleospecies of *Platynematum* FOISSNER, BERGER & KOHMANN, 1994 (Tab. 6), a replacement name of *Platynema*.

sorex Parafurgasonia (PENARD, 1922) FOISSNER & ADAM, 1981 – Zool. Anz. **207**: 304. **OT**: Soil of a beech forest; village of Baumgarten, Lower Austria (48°22'N, 15°34'E). 2 **NP?** (**sd**): 1981/52 (dry silver nitrate method); 1981/53 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides designated, although mislabelled as "genotypes". Protonym: *Nassula s*. PENARD, 1922 – Études Infusoires: 89. Nucleospecies of *Parafurgasonia* FOISSNER & ADAM, 1981 (Tab. 6).

spathula Spathidium (MÜLLER, 1773) DUJARDIN, 1841 – FOISSNER (1984) Stapfia **12**: 70. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel, Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). 2 **NP?** (**sd**): 1982/80, 1984/8 (Fig. 13). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes" (e.g. Fig. 13). Different dates of deposition, but same site and preparation year. On slide (inv. no. 1984/53), also labelled as "paratype", was collected in Lower Austria. Protonym: *Enchelis s*. MÜLLER, 1773 – Vermium Terrestrium et Fluviatilium: 38.

spetai Coleps FOISSNER, 1984 – Stapfia **12**: 21. **OT**: Plankton; Obertrumer-See, Salzburg, Austria (47°58'N, 13°6'E). 2 **SP** (unspecific **od** on page 8): 1984/10 (wet silver nitrate method); 1984/11. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

sphagni Bryometopus (PENARD, 1922) KAHL, 1932 – FOISSNER (1987) Zool. Beitr. N. F. **31**: 221. **OT**: Soil of an acidified spruce forest; Ulm, Germany (48°24'N, 10°0'E). **NP?** (**sd**): 1988/57. **Remarks**: Neotypification not mentioned in paper, but slide designated. Protonym: *Condylostoma s*. PENARD, 1922 – Études Infusoires: 204.

sphagni Drepanomonas KAHL, 1931 [Tierwelt Dtl. **21**: 305] – FOISSNER (1987) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **195**: 238. **OT**: Soil of an alternatively farmed field; urban area of Salzburg, Austria (47°48'N, 13°02'E). 3 **NP?** (**sd**): 1988/103; 1988/157, 1988/158 (two dry silver nitrate method). **Remarks**: Neotypification not mentioned in paper, but slides labelled.

sphagni Platyophrya (PENARD, 1922) FOISSNER, 1993 – FOISSNER & KREUTZ (1996) Linzer biol. Beitr. **28**: 745. **OT**: Small pond; Hegne, a suburb of Constance, Germany (47°40'N, 9°10'E). 6 **NP** (**od**): 1996/53 (nine marks); 1996/54 (wet silver nitrate method); 1996/55, 1996/56, 1996/57, 1996/58 (dry silver nitrate method). **Remarks**: Protonym: *Glaucoma s*. PENARD, 1922 – Études Infusoires: 126.

sphagni Pseudovorticella FOISSNER & SCHIFFMANN, 1974 – Protistologica **10**: 498. **OT**: *Sphagnum* infusion; Ibmer Moor, Upper Austria (48°3'N, 12°57'E). 14 **SP** (**sd**): 1974/230 (Fig. 3), 1974/231, 1974/232, 1974/233, 1974/234, 1974/235, 1974/236, 1974/237, 1974/238, 1974/239, 1974/240, 1974/241, 1974/242 (all dry silver nitrate method). **Remarks**: "Typification" not mentioned in the original paper, but on an external sheet of paper (Fig. 1); slides not designated (e.g. Fig. 3), except the latter which is labelled as "holotype", but four marks, thus also symphoront. Different deposition years, but same sampling year and location.

sphagnicola Steinia FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 235. **OT**: *Sphagnum*-pond; Koppler Moor near Salzburg, Austria (47°48'N, 13°10'E). **HP** (**od**): 1988/8; 6 **PP**: 1988/9, 1988/10, 1988/11, 1988/12, 1988/13, 1988/14. **Remarks**: Only three "paratypes" indicated.

spindleri Holosticha PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 164. **OT**: Sea ice; Weddell Sea, Antarctica (70°17'S, 8°53'W). **SP?** (**od**): 2001/138; **PP**: 2001/53. **Remarks**: Slide with one big circle, moreover "cells" are announced for the "holotype" in the paper.

spirogyrophagus Prorodon LEIPE, 1989 – Europ. J. Protistol. **24**: 392. **OT**: Mats of the filamentous green algae *Spirogyra* in "Lac d'Aydat" close to a weir in the department of "Puy de Dome", France (45°50'N, 2°38°E). **HP** (**od**): 1993/28. 2 **PP**: 1993/ 29, 1993/30. **Remarks**: Currently *Holophrya spirogyrophaga* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 538).

spumacola hexasticha Platyophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 960. **OT**: Soil from *Aloe dichotoma* forest; Gariganus Guest Farm, about 30 km northeast of the town of Keetmanshoop, Namibia (26°30'S, 18°25'E). **HP** (**od**): 2002/415; 4 **PP**: 2002/416, 2002/417, 2002/418, 2002/422.

spumacola Platyophrya KAHL, 1927 [Arch. Protistenk. **60**: 90].– FOISSNER (1985) Arch. Protistenk. **129**: 247. **OT**: Soil of a dry grassland (Xerobrometum) near Grafenwörth, Lower Austria (48°24'N, 15°47'E). **NP?** (**sd**): 1981/20 (wet silver nitrate method; mislabelled as *Woodrufia s*.). **Remarks**: Neotypification not mentioned in paper, but slide designated. The original locus classicus is cicada foam; Hamburg, Germany (cp. FOISSNER 1993, Protozoenfauna **4/1**: 589; 580). Currently subspecies rank according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 959).

srameki Trithigmostoma FOISSNER, 1988 – BLATTERER & FOISSNER (1992) Arch. Protistenk. **142**: 102. **OT**: River Traun near Steyrermühl, Upper Austria (48°N, 13°50'E). 2 **NP**

(**od**): 1993/50, 1993/51 (mislabelled as *T. hyalina* and "paratype"). **Remarks**: FOISSNER (1988, Hydrobiologia **162**: 23) replaced the original species name, viz. *Chilodonella hyalina* ŠRÁMEK-HUŠEK, 1952, because of preoccupation.

steineri Australothrix FOISSNER, 1995 – Arch. Protistenk. **145**: 66. **OT**: Upper soil layer of a river bank; Rio Corobici at the hacienda "La Pacifica" (Centre Ecologia La Pacifica) near town of Canas, Costa Rica (10°27'N, 85°8'W). **HP** (**od**): 1997/90; **PP**: 1997/91.

steini Blepharisma KAHL, 1932 [Tierwelt Dtl. **25**: 444] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 228. **OT**: Soil of a saline grassland with halophile plants near the Neusiedlersee, a soda lake in the "hell" region near Illmitz, Burgenland, Austria (47°48'N, 16°49'E). 2 **NP** (**od**): 1988/1, 1988/2.

steini Trithigmostoma (BLOCHMANN, 1895) FOISSNER, 1988 – Hydrobiologia **162**: 23. **OT**: Unspecified; Poland. 4 **NP?** (**sd**): 1988/124 (dry silver nitrate method); 1988/125, 1988/126 (Fig. 12 as *T. steinii*), 1988/127. **Remarks**: Neotypification not mentioned in the original paper, but slides designated, although two of them mislabelled as "syntype to neotype" (e.g. Fig. 12). Slides prepared from culture material. Protonym: *Chilodonella s.* BLOCHMANN, 1895 – Mikr. Thierwelt: 95.

stephani Trachelocerca (DRAGESCO, 1965) DRAGESCO 2002 – Linzer biol. Beitr. **34**: 1547. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/813, 2002/814. **Remarks**: Protonym: *Tracheloraphis s.* DRAGESCO, 1965 – Cah. Biol. mar. **6**: 368.

sterkii Paraholosticha (GARNJOBST, 1934) DIECKMANN, 1988 – Europ. J. Protistol. **23**: 218. **OT**: Brackish ditch; Cuxhaven, Niedersachsen, Germany (53°53'N, 8°42'E). **NP?** (**sd**): 1993/25. **Remarks**: Neotypification not mentioned in paper, but one unmarked slide designated; two further undesignated slides (1993/26, 1993/27) considered as vouchers. Protonym: *Stylonethes s.* GARNJOBST, 1934 – J. mar. biol. Ass. U. K. **19**: 707.

stoianovitchae Sorogena BRADBURY & OLIVE, 1980 [J. Protozool. **27**: 275] – BARDELE, FOISSNER & BLANTON (1991) J. Protozool. **38**: 7. **OT**: Plates of soakes dead figs collected in dried condition from a tree; Papua New Guinea. 6 **NP?** (**sd**): 1988/162, 1988/166, 1988/167, 1988/163 (wet silver nitrate method); 1988/164, 1988/165 (two dry silver nitrate method). **Remarks**: Neotypification not mentioned in the "reinvestigation of the type population" by BARDELE et al., but slides incorrectly labelled as "paratypes" were deposited. FOISSNER (1993, Protozoenfauna **4/1**: 499) mentiones a type slide PNG76-73 [according to BARDELE et al. the isolate acronym] originally deposited. Simultaneously, nucleospecies and nucleogenus (Tab. 6, 7).

stramenticola Orthoamphisiella EIGNER & FOISSNER, 1991 – Acta Protozool. **30**: 129. **OT**: Walnut leaf litter; village of Schrötten near Deutsch Goritz, Styria, Austria (46°47'N, 15°49'E). **SP** (**od**): 1993/31 (three arrows, Fig. 22); **PP**: 1993/32. **Remarks**: Labelled as "holotype", but three specimens marked violating Art. 73.2 (ICZN 1999), thus symphoront. Nucleospecies (Tab. 6) and subsequently nucleogenus of Orthoamphisiellidae EIGNER, 1997 (Tab. 7).

strenuum Gonostomum (ENGELMANN, 1862) STERKI, 1878 – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 815. **OT**: Mud and soil from road puddles; Bambatsi Guest Farm between the towns of Khorixas and Outjo, Namibia (20°10'S, 15°25'E). 4 **NP** (**od**): 2002/357, 2002/362, 2002/389, 2002/390. **Remarks**: Protonym: *Oxytricha strenua* ENGELMANN, 1862 – Z. wiss. Zool. **11**: 387.

striata Metacystis STOKES, 1893 [Jl R. microsc. Soc. **1893**: 300] – FOISSNER (1984) Stapfia **12**: 18. **OT**: Infusion with plant remnants and mud of a rock-pool; Banyuls-sur-Mer, France (42°29'N, 3°8'E). 2 **NP?** (**sd**): 1984/4 (wet silver nitrate method); 1984/5. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes".

striatus Loxodes (ENGELMANN, 1862) PENARD, 1917 – FOISSNER & RIEDER (1983) Zool. Anz. **210**: 3. **OT**: Decomposing litter on the margin of a quarry pond; Karlsruhe, Germany (49°0'N, 8°30'E). **NP?** (**sd**): 1981/1. **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". Protonym: *Drepanostoma striatum* ENGELMANN, 1862 – Z. wiss. Zool. **11**: 382.

strobli Fungiphrya FOISSNER, 1999 – J. Eukaryot. Microbiol. **46**: 34. **OT**: Mud/soil mixture from dry rock-pools; Table Mountain, surroundings of Cape Town, Republic of South Africa (33°53'S, 18°25'E). 2 **SP** (**od**): 1998/47 (wet silver nitrate method), 1998/49; **PP**: 1998/48. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6). Misspelled *F. stobili* by AESCHT (2003: 397).

stueberi Holosticha FOISSNER, 1987 – Jber. Haus der Natur Salzburg **10**: 59. **OT**: Soil of a meadow in front of the Piffmoos; Fuscher Tal, Salzburg, Austria (47°9'N, 12°48'E). **HP** (**od**): 1988/110; 3 **PP**: 1988/111, 1988/112, 1988/113. **Remarks**: Currently *Caudiholosticha s.* and nucleospecies of the latter genus according to BERGER (2003, Europ. J. Protistol. **39**: 377; Tab. 6).

sulcata Kovalevaia (KOVALEVA, 1966) FOISSNER, 1997 – DRAGESCO (1999) Annls Sci. nat. **1**: 31. **OT**: Marine sand; Sète near Montpellier, Mediterranean coast, France (43°23'N, 3°42'E). 2? **NP** (**od**): 2002/852, 2002/876. **Remarks**: Unspecifically designated as type specimens, but in fact neophoronts. Location according to slides; due to later deposition other inventory numbers as stated in the paper, viz. 1998/36, 1998/37. The latter two slides, without collection year and site, are mislabelled as *K. poljanskyi*, an undescribed species. The five(?) mediocrely impregnated voucher slides from Roscoff indicated by FOISSNER (1997, Acta Protozool. **36**: 205) have not been deposited. Protonym: *Trachelonema s.* KOVALEVA, 1966 – Zool. Zh. **45**. Nucleospecies of *Kovalevaia* FOISSNER, 1997 (Tab. 6).

sylvatica Erimophrya FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 667 **OT**: *Pinus nigra* forest soil; Stampftal near Vienna, Austria (47°53'N, 16°02'E). **HP** (**od**): 2007/678; PP: 2007/678 [figured], 2007/679, 2007/680, 2007/682.

sylvatica Holosticha FOISSNER, 1982 – Arch. Protistenk. **126**: 58. **OT**: Soil of a beech forest; village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **HP** (**sd**): 1981/95. **Remarks**: "Typification" not mentioned in the original paper, but

slide designated. Currently *Caudiholosticha s.* according to BERGER (2003, Europ. J. Protistol. **39**: 378). A voucher slide is deposited in the British Museum (Natural History) in London; concerning an inadvertent indication of a "neotype" see BERGER (2006, Monogr. Biologicae **85**: 240).

sylvatica Periholosticha FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 687. **OT**: *Pinus nigra* forest soil; Stampftal near Vienna, Austria (47°53'N, 16°02'E). **HP (od)**: 2007/680; **PP**: 2007/683, 2007/679, 2007/678.

sympagicum Gymnozoum PETZ, SONG & WILBERT, 1995 – Stapfia **40**: 74. **OT**: Multiyear land-fast sea ice; Atka Bay, Weddell Sea, Antarctica (70°31'S, 7°59'E). **SP? (od)**: 2001/120; **PP**: 2001/151. **Remarks**: A "hapantotype" (first slide) is combined with a "paratype" contradicting the indivisibility according to Art. 73.3.1 of the ICZN (1999). Since no ontogenesis is included likely a symphoront.

synuraphaga Urotricha KAHL, 1927 [Arch. Protistenk. **60**: 64] – FOISSNER (1997) Limnologica (Berlin) **27**: 220. **OT**: Röslau stream, Fichtelgebirge, Bavaria, Germany (50°6'N, 12°16'E). 2 **NP (od)**: 1998/62, 1998/63 (both wet silver nitrate method).

T

tamari Membranicola FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 626. **OT**: Plankton; eutrophic lake Wallersee, Salzburg, Austria (47°55'N, 13°10'E). **HP (od)**: 1999/84; 3 **PP**: 1999/85, 1999/86, 1999/87. **Remarks**: Fourth "paratype" announced, but not deposited. Nucleospecies (Tab. 6).

tanganyikae Frontonia DRAGESCO & DRAGESCO- KERNÉIS, 1991 – Europ. J. Protistol. **26**: 222. **OT**: Coastal sands of Lake Tanganyika, from Bujumbura and up to 80 km southwards, Burundi (3°19'S, 29°19'E). **HP (sd)**: 2002/888; PP: 2002/884 (1985, both wet silver nitrate method). **Remarks**: "Typification" not mentioned, but labels refer to this paper; one mark on the first slide, but non on the second. A further slide (inv. no. 2003/141) was collected in 1986 in Butare, thus considered as voucher.

tasmaniensis Keronopsis BLATTERER & FOISSNER, 1988 – Stapfia **17**: 53. **OT**: Soil of a hop culture; Bushy Park near Mt. Field National Parks, Tasmania, Australia (42°45'S, 146°50'E). **HP** (unspecific **od** on page 88): 1989/71.

tchadensis Pleurotricha DRAGESCO, 1972 – AnnlsFac. Sci. Univ. féd. Cameroun **11**: 85. **OT**: "Mare de la Réserve de Waza (échantillon 12)"; Yaounde, Cameroun (3°52'N, 11°31'E). **HP (sd)**: 2006/40 (collection year 1966). **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original author. Considered as junior subjective synonym of *P. lanceolata* by BERGER (1999, Monogr. Biologicae **78**: 700).

telmatobius Diplites FOISSNER, 1998 – Quekett J. Microsc. **38**: 207 (cp. FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 38, 197). **OT**: River rock-pools; Aubschlucht near Bullsport, Namibia (about 24°S, 16°20'E). **HP (od)**: 2002/434, **PP**: 2002/435. **Remarks**: Nucleospecies (Tab. 6).

teres Spirostomum CLAPARÈDE & LACHMANN, 1858 [Mém. Inst. natn. génev. **5**: 233] – AUGUSTIN & FOISSNER (1992) Arch. Protistenk. **141**: 257. **OT**: Activated sludge plant; Gastein, Salzburg, Austria (47°7'N, 13°8'E). 2 **NP(od** on page 244): 1993/84, 1993/85.

terrenum Enchelydium FOISSNER, 1984 – Stapfia **12**: 38. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel near Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). **HP** (unspecific **od** on page 8): 1984/23. **Remarks**: Slide incorrectly labelled as "*E. terricola*", a species never described.

terrenus Dileptus FOISSNER, 1981 [Zool. Jb. Syst. **108**: 286] – FOISSNER, 1984 – Stapfia **12**: 96. **OT**: Soil of a riverine floodplain; Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). **NP? (sd)**: 1984/72. **Remarks**: Not indicated as redescription and type designation as well as deposition not mentioned in the original paper, but slide designated, although incorrectly as "paratype".

terrenus Enchelyodon FOISSNER, 1984 – Stapfia **12**: 53. **OT**: Soil of a meadow; near Lange Lacke, Seewinkel, Burgenland, Austria (47°43'N, 16°49'E). 2 **SP** (unspecific **od** on page 8): 1984/40, 1984/41. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

terricola Amphisiella GELLERT, 1955 [Hidrol. Közl. **30**: 95] – FOISSNER (1984) Stapfia **12**: 114. **OT**: Soil of a dry grassland (Xerobrometum); Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). 2 **NP? (sd)**: 1984/89, 1984/88. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides labelled, although incorrectly as "paratype".

terricola Apobryophyllum FOISSNER, 1998 – Europ. J. Protistol. **34**: 222. **OT**: Soil from Shetani volcano area; Tsavo National Park, Kenya (2°55'S, 38°00'E). 2 **SP?** (unspecific **od** on page 196): 1997/114, 1997/115. **Remarks**: "1 holotype and 1 or 2 paratypes" are generally mentioned, but latter slide labelled as "syntype". Nucleospecies (Tab. 6).

terricola Apospathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 334. **OT**: Mud and soil from granitic rock-pools; escarpment of the central Namib Desert, Spitzkoppe area about 120 km north of the town of Swakopmund, Namibia (21°45'S, 15°8'E). **HP (od)**: 2002/478; 2 **PP**: 2002/481, 2002/482. **Remarks**: Nucleospecies (Tab. 6).

terricola Bresslaua FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 253. **OT**: Soil of a secondary pine forest; Shimba Hills near Mombasa, Kenya (4°13'S, 39°25'E). 2 **SP** (unspecific **od** on page 190): 1988/79, 1988/80 (both wet silver nitrate method); 2 **PP**: 1988/81, 1988/82. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Currently *Bresslauides t.* according to FOISSNER (1993, Protozoenfauna **4/1**: 300).

terricola Chilophrya FOISSNER, 1984 – Stapfia **12**: 24. **OT**: Soil of an alder forest (Alnetum viridis); Stubnerkogel near Bad Gastein, Salzburg, Austria (47°7'N, 13°6'E). 3 **SP** (unspecific **od** on page 8): 1984/6, 1984/7 (two dry silver nitrate method); 1984/8 (Fig. 13). **Remarks**: Three slides are labelled as "holotype" (e.g. Fig. 13), because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

terricola Cirrophrya FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 261. **OT**: Soil of a field; Ober-

siebenbrunn, Lower Austria (48°16'N, 16°42'E). **HP (sd)**: 1988/103. **Remarks**: "Typification" in contrast to other species, thus probably par lapsus not mentioned in the paper, but slide designated. Currently *Platyophrya t.* according to FOISSNER I. & FOISSNER (1995) Europ. J. Protistol. **31**: 257).

terricola Condylostoma FOISSNER, 1995 – Arch. Protistenk. **145**: 59. **OT**: Upper soil layer; near the ranch house "La Casona", Santa Rosa National Park, Costa Rica (10°50'N, 85°38'W). **HP (od)**: 1997/94; **PP**: 1997/9. **Remarks**: Currently *Condylostomides t.* according to FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 899).

terricola Coriplites FOISSNER, 1988 – Stapfia **17**: 93. **OT**: Soil of a deciduous forest; Mt. Kado-yama, Amakusa Islands, Kumamoto Prefecture, Japan (32°48'N, 130°43'E). 2 **SP?** (unspecific **od** on page 88): 1989/12, 1989/39. **Remarks**: A deposition in the British Museum of Natural History in London is stated, however, one slide (inv. no. 1989/12) is labelled as "paratype", the second is undesignated ("Beleg", viz. voucher), but with seven marks. The species could not be found on the internet list of the Museum, however, although FOISSNER as well as BERGER & FOISSNER appear on the collection list, non of their slides could be traced. Possibly, the name-bearers were inadvertently deposited in Linz; needs clarification. Nucleospecies (Tab. 6).

terricola Dragescozoon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 912. **OT**: Soil; surroundings of Cotonou, Benin (6°15'N, 2°20'E). **HP (od)**: 2002/544; 3 **PP**: 2002/545, 2002/546, 2002/547 (all wet silver nitrate method). **Remarks**: Nucleospecies (Tab. 6).

terricola Enchelys FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 219. **OT**: Meadow soil; urban area of Salzburg, Austria (47°48'N, 13°02'E). **HP (od)**: 1988/101; **PP**: 1988/102.

terricola Epispathidium FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 234. **OT**: Soil of a spruce forest; Ulm/Donau, Germany (48°24'N, 10°0'E). **HP (od)**: 1988/151; **PP**: 1988/152.

terricola Etoschothrix FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 594. **OT**: Highly saline soil; Etosha National Park, lookout site "Pan", Namibia (19°10'S, 15°55'E). **HP (od)**: 2002/140; 6 **PP**: 2002/141, 2002/142, 2002/143, 2002/144, 2002/145, 2002/146. **Remarks**: Three slides labelled as vouchers, but designated according to their table 1 on page 39. Nucleospecies (Tab. 6).

terricola Frontonia FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 254. **OT**: Field soil; Lobau, Wien, Austria (48°9'N, 16°31'E). **HP (od)**: 1986/3; 2 **PP**: 1986/4, 1986/5 (all wet silver nitrate method). **Remarks**: Only one "paratype" indicated in the paper, but two slides labelled.

terricola Fuscheria BERGER, FOISSNER & ADAM, 1983 – J. Protozool. **30**: 529. **OT**: Soil of a bottomland; Grafenwörth, Lower Austria (48°24'N, 15°47'E). **HP (od)**: 1981/4. **Remarks**: Slide labelled as "*F. flatscheri*", which has not been described anywhere. A "paratype", as indicated on page 531, has not been deposited.

terricola Hemiurosoma FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 835. **OT**: Soil from *Moringa ovalifolia* (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). **HP (od)**: 2002/127; 3 **PP**: 2002/128, 2002/129, 2002/130. **Remarks**: Nucleospecies (Tab. 6).

terricola Holostichides FOISSNER, 1988 – Stapfia **17**: 108. **OT**: Savannah soil; Samburu Nationalpark, Kenya (0°40'N, 37°32'E). **HP** (unspecific **od** on page 88): 1989/18 (Fig. 14); 2 **PP**: 1989/19, 1989/20. **Remarks**: Currently *Paragastrostyla t.* according to BERGER (2006, Monogr. Biologicae **85**: 593, 631).

terricola Nassula FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 190. **OT**: Soil of a field; urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **SP (od)**: 1988/17, 1988/18; **PP**: 1988/19 (all wet silver nitrate method). **Remarks**: One "holotype" indicated, but two slides with same preparation method are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

terricola Paraenchelys FOISSNER, 1984 – Stapfia **12**: 30. **OT**: Soil of an intensely farmed field; Bierbaum, Tullnerfeld, Lower Austria (48°23'N, 15°56'E). **HP** (unspecific **od** on page 8): 1984/14.

terricola Parafurgasonia FOISSNER, 1999 – Biodiversity and Conservation **8**: 356. **OT**: Litter layer of leguminous forest surrounding the Mzima Springs in Tsavo National Park West, Kenya (2°59'S, 38°01'E). **HP (od)**: 1999/23 (wet silver nitrate method).

terricola Phialina FOISSNER, 1984 – Stapfia **12**: 63. **OT**: Soil of an intensely farmed field; Bierbaum, Tullnerfeld, Lower Austria (48°23'N, 15°56'E). **HP** (unspecific **od** on page 8): 1984/48.

terricola Plesiocaryon FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 963. **OT**: Soil from *Moringa ovalifolia* (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). 2 **SP (od)**: 2002/175, 2002/176 (wet silver nitrate method); 4 **PP**: 2002/177 (wet silver nitrate method); 2002/178, 2002/179, 2002/180. **Remarks**: Two slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts.

terricola Protocyclidium (KAHL, 1931) FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 525. **OT**: Meadow soil; urban area of Salzburg, Austria (47°48'N, 13°02'E). 7 **NP (od)**: 2002/610, 2002/611 (both wet silver nitrate method); 2002/612, 2002/613, 2002/614, 2002/615, 2002/616 (six dry silver nitrate method). **Remarks**: Protonym: *Cyclidium t.* KAHL, 1931 – Tierwelt Dtl. **21**: 375.

terricola Protospathidium FOISSNER, 1998 – Europ. J. Protistol. **34**: 218. **OT**: Grassland soil; Mt. Kenya near the lodge "The Arc", Mount Kenya National Park, Kenya (about 0°10'S, 37°20'E). 3 **SP** (unspecific **od** on page 196): 1997/111 (three marks), 1997/112 (one marks), 1997/113 (two marks). **Remarks**: "1 holotype and 1 or 2 paratypes" are generally mentioned on page 196. However, the latter two slides labelled as "syntypes" and the "holotype" includes more than one specimen marked.

terricola Pseudoholophrya BERGER, FOISSNER & ADAM, 1984 – Zool. Jb. Syst. **111**: 343. **OT**: Soil of a ski slope; Schlossalm, Bad Hofgastein, Salzburg, Austria (47°9'N, 13°4'E). **HP (od)**: 1986/19; 2 **PP**: 1986/20, 1986/21. **Remarks**: On-

ly one "paratype" indicated in the paper, but two unlabelled slides from the same locality considered herein as "paratypes". Nucleospecies (Tab. 6); *Pseudoholophrya* is the nucleogenus of Pseudoholophryidae BERGER, FOISSNER & ADAM, 1984 (Tab. 7).

terricola Saudithrix FOISSNER, AL-RASHEID & BERGER in BERGER, AL-RASHEID & FOISSNER, 2006 – J. Eukaryot. Microbiol. **53**: 267. **OT**: Soil of a vegetable field about 20 km north of Riyadh, Saudi Arabia (24°64'N, 46°77E°). **HP** (**od**): 2005/77; PP: 2005/78, 2005/79, 2005/80, 2005/81, 2005/82. **Remarks**: Nucleospecies (Tab. 6).

terricola Sphaerophrya FOISSNER, 1986 – Zool. Jb. Syst. **113**: 49. **OT**: Soil of a dry grassland (Xerobrometum); Bierbaum, Tullnerfeld, Lower Austria (48°23'N, 15°56'E). **HP** (**od**): 1982/53 (dry silver nitrate method). **Remarks**: Slide incorrectly labelled as *Podophrya t.*; "paratype" indicated, but not deposited.

terricola Trihymena FOISSNER, 1988 – Stapfia **17**: 103. **OT**: Gum tree (*Ficus* sp.) litter; Nairobi Arboretum, Kenya (2°20'S, 36°50'E). 3 **SP** (unspecific **od** on page 88): 1989/18 (Fig. 14); 1989/23 (wet silver nitrate method); 1989/24 (dry silver nitrate method); 2 **PP**: 1989/18 (Fig. 14); 1989/25 (dry silver nitrate method). **Remarks**: Three slides are labelled as "holotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Simulataneously nucleospecies and nucleogenus (Tab. 6, 7).

terricola Urliella FOISSNER, 1989 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 203. **OT**: Field soil; Obersiebenbrunn, Lower Austria (48°16'N, 16°42'E). **HP** (**od**): 1988/31 (mislabelled as "genotype"); 3 **PP**: 1988/32, 1988/33, 1988/34. **Remarks**: One "paratype" indicated. Nucleospecies (Tab. 6).

terricola Woodruffides FOISSNER, 1987 [Zool. Beitr. N. F. **31**: 229] – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 1009. **OT**: Slightly saline soil from *Moringa ovalifolia* (ghost tree) forest; Etosha National Park, Namibia (19°S, 15°40'E). 3 **NP?** (**od**): 2002/149, 2002/150, 2002/151 (all wet silver nitrate method). **Remarks**: However, a "holotype" from Lower Austria was found (inv. no. 1988/100; dry silver nitrate method); needs clarification. Nucleospecies (Tab. 6).

tetracirrata Holosticha BUITKAMP & WILBERT, 1974 [Acta Protozool. **13**: 206] – FOISSNER (1982) Arch. Protistenk. **126**: 55. **OT**: Soil of an alpine mat (Caricetum curvulae); Wallack-Haus, Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (about 2310 m altitude, 47°6'N, 13°7'E). **NP?** (**sd**): 1981/99. **Remarks**: Neotypification not mentioned in paper, but slide designated, although mislabelled as "paratype". Demonstrating possible discrepancies between publication and "unpublished evidence", thus a "neotype" was not per se "incorrect" as stated by BERGER (2006, Monogr. Biologicae **85**: 246). Currently *Caudiholosticha t.* according to BERGER (2006, Monogr. Biologicae **85**: 246); this author supposes that (not officially designated) type material is likely in the Zoological Institute of the University of Bonn and considered the above slide as voucher; needs to be clarified.

tetracirrata Steinia GELLERT, 1942 [Acta Sci. math.-nat. Univ. Francisco-Josephina Kolozsvar (N.F.) **8**: 25] – BERGER & FOISSNER (1987) Zool. Jb. Syst. **114**: 225. **OT**: Salt soil with rush; about 50 m away from the sea, Nauplia Bay, Peleponnesus, Greece (37°34'N, 22°48'E). **NP?** (**sd**): 1986/85. **Remarks**: Neotypification not mentioned in paper, but slide designated. Currently *Cyrtohymena t.* according to FOISSNER, 1989 – Sber. öst. Akad. Wiss **196**: 239; classified in subgenus (Tab. 5) according to FOISSNER (2004, Denisia **13**: 370), although not formally transferred.

thompsoni Sterkiella FOISSNER, 1996 – Acta Protozool. **35**: 112. **OT**: *Drepanocladus uncinatus* moss; Signy Island, South Orkney Islands, Antarctica (60°40'S, 45°40'W). **HP** (unspecific **od** on page 97): 1997/55; **PP**: 1997/56.

tihanyiensis Apoamphisiella (GÉLLERT & TAMÁS, 1958) FOISSNER, 1997 – Biol. Fertil. Soils **25**: 335. **OT**: Ligth brown soil mixed with much leaf litter; Isquitos, Amazonian rain forest, Peru (about 4°S, 74°W). 3 **NP?** (**sd**): 1998/111, 1998/112, 1998/113. **Remarks**: Only two vouchers stated in publication on page 319, but one slide neotypified and two slides mislabelled as "paratypes". BERGER (1999, Monogr. Biologicae **78**: 782) however, mentiones two "neotypes". Protonym: *Onychodromopsis t.* GÉLLERT & TAMÁS, 1958 – Annls Inst. biol. Tihany **25**: 230. Nucleospecies of *Apoamphisiella* FOISSNER, 1997 (Tab. 6).

"*tortisticha Cultellothrix*" FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 294. **OT**: Terra firma secondary rain forest soil; bank of Rio Negro in the surroundings of Hotel Tropical at Manaus, Brazil (3°S, 60°W). **HP** (**od**): 2007/59. 3 **PP**: 2007/58, 2007/59, 2007/60. **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

tranquilla Dexiotricha (KAHL, 1926) AUGUSTIN & FOISSNER, 1992 – Arch. Protistenk. **141**: 244. **OT**: Activated slude plant; Aspach, Upper Austria (48°11'N, 13°18'E). 3 **NP** (**od** on page 244): 1993/90; 1993/92 (dry silver nitrate method); 1993/91 (wet silver nitrate method). **Remarks**: Only two slides announced in the paper. Protonym: *Loxocephalus tranquillus* KAHL, 1926 – Arch. Protistenk. **55**: 330.

transfuga Uronychia (MÜLLER, 1776) STEIN, 1859 – PETZ, SONG & WILBERT (1995) Stapfia **40**: 173. **OT**: Endopagial of pancake, multiyear land-fast sea and multiyear sea ice; Weddell Sea, Antarctica (67°47'–71°00'S, 06°05'–12°08'W). **NP** (**od** without number): 2001/138. **Remarks**: Protonym: *Trichoda t.* MÜLLER, 1776 – Zoologicae Danicae: 281. Nucleospecies of *Uronychia* STEIN, 1859 (Tab. 6), which is the nucleogenus of Uronychiidae JANKOWSKI, 1975 (Tab. 7).

tratzi Enchelyodon FOISSNER, 1987 – Jber. Haus der Natur Salzburg **10**: 64. **OT**: Soil of a meadow in front of the Piffmoos; Fuscher Tal, Salzburg, Austria (47°9'N, 12°48'E). **HP** (**od**): 1988/116; **PP**: 1988/117.

trichocystiferum Colpodidium (*Colpodidium*) FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 480. **OT**: Saline inland soil; Zicksee region, Burgenland, Austria (47°50'N, 16°50'E). **HP** (**od**): 2002/636; **PP**: 2002/637.

trichocystiferus Actinorhabdos FOISSNER, 1984 – Stapfia **12**: 47. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher; urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **SP** (unspecific **od** on page

8): 1984/29, 1984/30. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6). Misspelled *A. trichocystiferrus* by AESCHT (2001: 19, 2003: 398).

trichocystis Furgasonia (STOKES, 1894) JANKOWSKI, 1964 – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 207. **OT**: Astatic meadow-pond; between the so-called Henkerhaus and the Peterweiher; urban area of Salzburg, Austria (47°48'N, 13°02'E). 2 **NP** (**od**): 1988/29, 1988/30 (both wet silver nitrate method). **Remarks**: Protonym: *Nassula t.* STOKES, 1894 – Proc. Am. phil. Soc. **33**: 342. Considered as junior subjective synonym of *Furgasonia theresae* by FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 457).

trichocystis Lagynophrya FOISSNER, 1981 – Zool. Jb. Syst. **108**: 270. **OT**: Soil of an alpine pasture; Hochmais at the Großglockner-Hochalpenstraße, Hohe Tauern, Salzburg, Austria (47°7'N, 12°48'E). **SP** (**sd**): 1981/5. **Remarks**: "Typification" not mentioned in the original paper, but slide designated as "holotype"; due to seven marks considered as symphoront.

trimarginata Diaxonella JANKOWSKI, 1979 [Trudy zool. Inst. **86**: 83] – OBERSCHMIDLEITNER & AESCHT (1996) Beitr. Naturk. Oberösterreichs **4**: 21. **OT**: Activated sludge plant at Asten near Linz, Upper Austria (48°13'N, 14°24'E). **NP** (unspecific **od** on page 7): 1997/136. **Remarks**: Not included in the list of AESCHT (2003), because the specificity of the slide was only clarified later. For complications with type material and supplements to neotypification see BERGER (2006, Monogr. Biologicae **85**: 467ff.). According to this paper junior subjective synonym of *D. pseudorubra pseudorubra* (KALTENBACH, 1906) BERGER, 2006. Nucleospecies (Tab. 6).

trinucleatus Condylostomides FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 899. **OT**: Floodplain soil; Murray River near the town of Albury at the land side of Ryans road, New South Wales, Australia (37°S, 147°E). **HP** (**od**): 2002/724; **PP**: 2002/725.

tripartita Colpoda KAHL, 1931 [Tierwelt Dtl. **21**: 276] – BLATTERER & FOISSNER (1988) Stapfia **17**: 16. **OT**: Litter and roots under mosses of a natural pine forest (*Callitris* sp.); near Tailem Bend, Adelaide, Australia (35°16'S, 139°27'E). 4 **NP?** (**sd**): 1989/42, 1989/43 (both wet silver nitrate method); 1989/44, 1989/45 [sample 13]. **Remarks**: Neotypification not mentioned in paper, but slides labelled. Five different sites in Australia given, neotype locality according to label on one slide.

trisenestra Pseudokeronopsis DRAGESCO & DRAGESCO- KERNÉIS, 1991 – Europ. J. Protistol. **26**: 230. **OT**: Saprobic sands of temporary pools supplied by the waves of Lake Tanganyika, Burundi (3°19'S, 29°19'E). 2 **SP** (**sd**): 2002/896, 2002/897. **Remarks**: "Typification" not mentioned, but labels refer to this paper; one mark on each slide.

tristriata Podophrya FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 396. **OT**: Forest soil; near Tinaro Dam in the surroundings of Cairns, Australia (17°S, 145°E). **HP** (**od**): 2002/702; 2 **PP**: 2002/703, 2002/704.

truncatum Paracolpidium (STOKES, 1885) GANNER & FOISSNER (1989) – Hydrobiologia **182**: 205. **OT**: Macrophyte-based waste water treatment system; Ardenberg, Upper Austria (48°8'N, 12°58'E). 3 **NP** (**od** without number on page 182): 1989/1, 1989/2; 1989/3 (wet silver nitrate method). **Remarks**: Location according to slides likely inadvertently labelled as "Salzburg". One slide from Lower Austria mislabelled as "paratype" (inv. no. 1981/55) probably refers to FOISSNER & SCHIFFMANN (1980, Naturk. Jb. Stadt Linz **24**: 28; aphory). Protonym: *Colpidium t.* STOKES, 1885 – Ann. Mag. nat. Hist. **15**: 443. Nucleospecies of *Paracolpidium* GANNER & FOISSNER 1989 (Tab. 6).

turgitorum Spathidium FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 234. **OT**: Highly saline soil; Etosha National Park, Wolfsnes water-hole near the margin of the Etosha Pan, Namibia (19°S, 15°50'E). **HP** (**od**): 2002/3; 8 **PP**: 2002/4, 2002/5, 2002/6, 2002/7, 2002/8, 2002/184, 2002/191, 2002/192.

turrita Aspidisca (EHRENBERG, 1831) CLAPARÈDE & LACHMANN, 1858 – AUGUSTIN & FOISSNER (1992) Arch. Protistenk. **141**: 244. **OT**: Activated slude plant; Filzmoos, Salzburg, Austria (47°26'N, 13°31'E). 3 **NP** (**od** on page 244): 1993/72 (dry silver nitrate method); 1993/73, 1993/74. **Remarks**: Only two slides announced in the paper. Protonym: *Euplotes turritus* EHRENBERG, 1831 – Abh. Akad. Wiss. Berlin **1831**: 118.

U

umbrellata Maryna (GELEI, 1950) FOISSNER, 1993 – FOISSNER, AGATHA & BERGER (2002) Denisia **5**: 945. **OT**: Rio Corobici; at the hacienda "La Pacifica" (Centro Ecológico) near the town of Cañas, Costa Rica (10°28'N, 85°10'W). 5 **NP** (**od**): 2002/746, 2002/748, 2002/749 (all wet silver nitrate method); 2002/750, 2002/751. **Remarks**: Protonym: *Mycterothrix umbrellata* GELEI, 1950 – Hidrol. Közl. **30**: 112.

uncinata Chilodonella (EHRENBERG, 1835) STRAND, 1928 – FOISSNER (1979) Int. Revue ges. Hydrobiol. **64**: 124. **OT**: Neuston of alpine pools; Hexenküche, Glockner, Salzburg, Austria (47°7'N, 12°49'E). **NP?** (**sd**): 1981/41. **Remarks**: "Typification" not mentioned in the original paper, but slide designated, although mislabelled as "paratypes". Protonym: *Chilodon uncinatus* EHRENBERG, 1835! – Abh. Akad. Wiss. Berlin **1835**: 164. Nucleospecies of *Chilodonella* STRAND, 1928 (Tab. 6) and subsequently nucleogenus (Tab. 6, 7).

undulans Blepharisma STEIN, 1867 [Org. Infusionsthiere II: 186] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 231. **OT**: Soil of a riverine floodplain; Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). 2 **NP** (**od**): 1988/3, 1988/4.

uninucleata Gruberia KAHL, 1932 [Tierwelt Dtl. **25**: 441] – DRAGESCO (2002) Linzer biol. Beitr. **34**: 1561. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 2 **NP** (unspecific **od** on page 1547): 2002/796, 2002/797. **Remarks**: Nucleospecies (Tab. 6).

utriculariae Siroloxophyllum (PENARD, 1922) FOISSNER & LEIPE, 1995 – J. Eukaryot. Microbiol. **42**: 477. **OT**: Waterwork; Bad Füssing near Straubing, Bavaria, Germany (48°22'N, 13°19'E). 2 **NP** (**od**): 1997/43, 1997/44 (as *S. utricularium*). **Remarks**: Mentioned as "holo (genus) type slide", "voucher slide" and as "neotypes", but in fact they are neophoronts. Due to later deposition other inventory

numbers as stated in the paper, viz."26, 27/1994". Protonym: *Amphileptus utricullariae* PENARD, 1922 – Études Infusoires: 64. Since the genus has neuter gender, the species name has to be corrected to *S. utricularium* nom. corr. Nucleospecies (Tab. 6).

V

variabilis Colpoda FOISSNER, 1980 – Acta Protozool. **19**: 42. **OT**: Puddle in the east of the Wallack-Haus; Großglockner-Hochalpenstraße, Hohe Tauern, Carinthia, Austria (47°04'N, 12°49'E). **PP** (**sd**): 1981/24. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Location of "holotype" unknown.

"*velhoi Cultellothrix*" FOISSNER, 2003 – Acta Protozool. **42**: 47. **OT**: Floodplain soil; Parana River near the town of Maringá, Brazil (22°40'S, 53°15'W). **HP** (**od**): 2007/72; PP: 2007/73, 2007/74, 2007/75, 2007/76. **Remarks**: Nucleospecies (Tab. 6). Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3).

venatrix Urotricha KAHL, 1935 [Tierwelt Dtl. **30**: 807] – FOISSNER, BERGER & SCHAUMBURG (1999) Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 315. **OT**: Pelagial of Höglwörther See, a small lake in southern Bavaria, Germany (47°49'N, 12°50'E). 4 **NP** (**od**): 1999/75, 1999/76 (both wet silver nitrate method); 1999/77, 1999/78. **Remarks**: Incorrectly designated as "2 holotypes, 2 paratypes" in the paper, but in fact neophoronts.

venusta Ilsiella FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 272. **OT**: Meadow soil; Kiganjo, about 30 km southwest of Mt. Kenya, Kenya (0°24'S, 37°0'E). 2 **SP** (unspecific **od** on page 190): 1988/92 (dry silver nitrate method); 1988/93. **Remarks**: Two slides are labelled as "holotype" and "genotype", because of different preparation methods, violating Art. 73.2 (ICZN 1999), thus symphoronts. Nucleospecies (Tab. 6).

vermiculare Homalozoon (STOKES, 1887) STOKES, 1890 – FOISSNER (1984) Stapfia **12**: 90. **OT**: Unknown (culture from HAUSMANN, University Berlin) 4 **NP?** (**sd**): 1984/66, 1984/67, 1984/68, 1984/69. **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Needs clarification, because redescription is (partially) stated as unnecessary. Protonym: *Litonotus vermicularis* STOKES, 1887 – Ann. Mag. nat. Hist. **20**: 104. Nucleospecies of *Homalozoon* STOKES, 1890 (Tab. 6).

vermicularis Enchelyomorpha (SMITH, 1899) KAHL, 1930 – AUGUSTIN & FOISSNER (1992) Arch. Protistenk. **141**: 250. **OT**: Activated slude plant; Abtenau, Salzburg, Austria (47°33'N, 13°21'E). 2 **NP**(**od** on page 244): 1993/93 (dry silver nitrate method); 1993/94. **Remarks**: Slides mislabelled as "paratypes". Protonym: *Enchelys v.* SMITH, 1899 – Trans. Am. microsc. Soc. **20**: 52. Nucleospecies of *Enchelyomorpha* KAHL, 1930 (Tab. 6), which is the nucleogenus of Enchelyomorphidae AUGUSTIN & FOISSNER, 1992 (Tab. 7).

"*vermiculus Protospathidium*" (KAHL, 1926) FOISSNER & XU, 2007 – Monogr. Biologicae **81**: 99. **OT**: Mire; surrounding of the village of Thingvellier, about 45 km east of the town of Reykjavik, SW-Iceland (64°15'N, 21°10'W). **NP** (**od**): 2007/121 (labelled as para-neotype, ten marks), 2007/122 (six marks), 2007/123 (ten marks), 2007/124 (labelled as para-neotype, 11 marks). **Remarks**: Nomenclaturaly unavailable due to aphory (see Glossary; ICZN 1999 Art. 72.3). Protonym: *Spathidium v.* by KAHL, 1926 – Arch. Protistenk. **55**: 269.

vermiforme Apobryophyllum FOISSNER, AGATHA & BERGER, 2002 – Denisia **5**: 357. **OT**: Highly saline terrestrial material from the dry bed of river; Löwen River, about 100 m downstream the "Naute" dam in the swarf shrub savannah, Namibia (26°55'S, 17°55'E). **HP** (**od**): 2002/475; 2 **PP**: 2002/476, 2002/477.

vermiforme Arcuospathidium FOISSNER, 1984 – Stapfia **12**: 79. **OT**: Soil of a conventionally farmed meadow; Schaming, Eugendorf near Salzburg, Austria (47°52'N, 13°7'E). 2 **SP** (unspecific **od** on page 8): 1984/62, 1984/63. **Remarks**: No specimens marked, thus symphoronts. One further slide (inv. no. 1984/61) also labelled as "paratype", but sampled in Lower Austria, thus voucher.

vermiforme Cardiostomatella (KAHL, 1928) CORLISS, 1960 – DRAGESCO (2002) Linzer biol. Beitr. **34**: 1572. **OT**: Marine sand; Roscoff, Atlantic coast, France (48°44'N, 3°59'W). 3 **NP?** (unspecific **od** on page 1547): 2002/794 (1995), 2002/795 (1996), 2002/912 (1965, division stage; all labelled as *Cardiostoma v.*) **Remarks**: Site according to slides, contradicting Sète (Mediterranean coast) given in the paper. Moreover, slides from different years; needs clarification. Protonym: *Cardiostoma v.* KAHL, 1928 – Arch. Hydrobiol. **19**: 101. Nucleospecies of *Cardiostomatella* CORLISS, 1960 (Tab. 6). Since this genus has feminine gender the species name has to be corrected to *C. vermiformis* according to ICZN (1999 Art. 31.2; cp. AESCHT 2001: 38). Since AL-RASHEID (2001, Prostistology **2**: 15) also neotypified the species, the case needs to be clarified by the International Commission of Zoological Nomenclature.

vermiformis Enchelyodon DRAGESCO, 1970 – AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 7. **OT**: Limnetic sites; Nkolbisson, Yaounde, Cameroun (3°52'N, 11°31'E). **HP** (**sd**): 2002/934 (wet silver nitrate method). **Remarks**: "Typification" not mentioned, but label refers to this paper; one mark.

vermiformis Enchelys FOISSNER, 1987 – Sber. Österr. Akad. Wiss., Math.-Naturwiss. **195**: 223. **OT**: Field soil; Seekirchen, Salzburg, Austria (47°54'N, 13°8'E). 2 **SP** (**od**): 1988/108, 1988/109. **Remarks**: Two slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

vernalis Nassula GELEI & SZABADOS, 1950 [Annls biol. Univ. szeged. **1**: 259.] – FOISSNER (1989) Sber. Österr. Akad. Wiss., Math.-Naturwiss. Kl., I. Abt. **196**: 194. **OT**: Pasture pool; Koppler Moor near Salzburg, Austria (47°48'N, 13°10'E). 2 **NP** (**od**): 1988/20, 1988/21 (both wet silver nitrate method). **Remarks**: Currently *Nassulides v.* according to FOISSNER, AGATHA & BERGER (2002, Denisia **5**: 413).

vernalis Sathrophilus DRAGESCO & GROLIERE, 1969 – Annls Sta. Biol. Besse-en-Chandesse **4**: 281. **OT**: Unknown; Besse-en-Chandesse, France (45°31'N, 2°56'E). **HP** (**sd**): 2002/916 (wet silver nitrate method). **Remarks**: "Typifi-

cation" not mentioned, but label refers to this paper; one mark. Currently *Sphenostomella v.* and nucleospecies of the latter genus according to JANKOWSKI (1980, Trudy zool. Inst. **94**: 119; Tab. 6).

vernalis Stokesia WENRICH, 1929 [Trans. Am. microsc. Soc. **48**] – KRAINER (1995) Lauterbornia **21**: 50. Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). 2 **NP** (unspecific **od** on page 40): 1992/28; 1992/29 (dry silver nitrate method). **Remarks**: Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

vernalis Vorticella STOKES, 1887 [Am. mon. microsc. J. **8**: 145] – FOISSNER, BERGER & SCHAUMBURG, 1999 – Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 494. **OT**: Pelagial; Lake Mondsee, Upper Austria (47°49'N, 13°23'E). 3 **NP? (sd)**: 1998/125; 1998/126, 1998/127 (two dry silver nitrate method). **Remarks**: Neotypification not mentioned, but slides labelled; locality according to slides.

verruculifera Apertospathula FOISSNER, XU & KREUTZ, 2005 – J. Eukaryot. Microbiol. **52**: 360. **OT**: Saline mud and soil from flooded grassland in the Maracay National Park, north coast of Venezuela (10°30'N, 68°W). **HP (od)**: 2007/17; PP: 2007/15, 2007/16.

virens Climacostomum (EHRENBERG, 1838) STEIN, 1859 – AUGUSTIN & FOISSNER (1992) Arch. Protistenk. **141**: 261. **OT**: Activated slude plant; Zellhof, Upper Austria (47°59'N, 13°6'E). 2 **NP (od)**: 1993/82, 1993/83. **Remarks**: Protonym: *Spirostomum v.* EHRENBERG, 1838 – Infusionsthierchen: 332. Nucleospecies of *Climacostomum* STEIN, 1859 (Tab. 6).

viride Limnostrombidium (STEIN, 1867) KRAINER, 1995 – Lauterbornia **21**: 54. **OT**: Pelagial of quarry ponds (Tillmitscher Baggerseen) in the south of Graz, Styria, Austria (46°50'N, 15°30'W). 2 **NP** (unspecific **od** on page 40): 1992/24, 1992/31 (as *Strombidium v.*). **Remarks**: Protonym: *Strombidium v.* STEIN, 1867 – Organismus der Infusionsthiere II: 163. Nucleospecies of *Limnostrombidium* KRAINER, 1995 (Tab. 6).

vitiphila Pattersoniella FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 207. **OT**: Soil of a rain forest near Suva; Viti Levu, Fiji Islands, Pacific Ocean (18°0'S, 178°0'E). **HP** (unspecific **od** on page 190): 1988/131 (incorrectly labelled as "genotype"); 3 **PP**: 1988/132, 1988/133, 1988/134. **Remarks**: Nucleospecies and subsequently nucleogenus (Tab. 6, 7).

vitiphila Uroleptoides FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 201. **OT**: Soil of a rain forest near Suva, Viti Levu, Fiji Islands, Pacific Ocean (18°0'S, 178°0'E). **HP** (unspecific **od** on page 190): 1988/141; **PP**: 1988/142. **Remarks**: Gender ending corrected to *U. vitiphilus* by FOISSNER (1988, Stapfia **17**: 113). Currently *Amphisiella vitiphila* according to FOISSNER (1988, Stapfia **17**: 113).

vlassaki Arcuospathidium FOISSNER, 2000 – Biol. Fertil. Soils **30**: 470. **OT**: Highly saline soil; margin (*Suaeda articulata* zone) of the Etosha Pan, Namibia (about 18°50'S, 16°20'E). **HP (od)**: 2002/26; 3 **PP**: 2002/27, 2002/28, 2007/91. **Remarks**: More "paratypes" announced, but not deposited.

volvox Askenasia (EICHWALD, 1852) KAHL, 1930 – KRAINER & FOISSNER (1990) J. Protozool. **37**: 417. **OT**: Excavated groundwater ponds near Graz, Styria, Austria (47°04'N, 15°25'E). 3 **NP** (unspecific **od** on page 415): 1992/6, 1992/2, 1992/7. **Remarks**: Protonym: *Trichodina v.* EICHWALD, 1852 – Bull. Soc. impér. nat. Moscou **25**: 510. Nucleospecies of *Askenasia* BLOCHMANN, 1895 (Tab. 6).

vorax Chaenea QUENNERSTEDT, 1867 [Acta Univ. lund. **2**: 15] – FOISSNER (1984) Stapfia **12**: 60. **OT**: Infusion with plant remnants and mud of a rock-pool on the coast of Banyuls-sur-Mer, France (42°29'N, 3°8'E). 2 **NP? (sd)**: 1984/46; 1984/47 (wet silver nitrate method). **Remarks**: Neotypification not mentioned in paper (see page 8), but slides designated, although mislabelled as "paratypes". Nucleospecies (Tab. 6).

vorax Stylonychia STOKES, 1885 [Am. mon. microsc. J. **6**: 188] – WIRNSBERGER, FOISSNER & ADAM (1985) J. Protozool. **32**: 261. **OT**: Pasture pools; Schlossalm Bad Hofgastein, Salzburg Austria (47°06'N, 13°07'E). 2 **NP? (sd)**: 1986/34, 1986/35. **Remarks**: Neotypification not mentioned in paper, but slides labelled as "neotypes". Considered as misidentified and as junior subjective synonym of *S. bifaria* (STOKES, 1887) BERGER, 1999 by BERGER (1999, Monogr. Biologicae **78**: 557).

W

weissei Paraurostyla (STEIN, 1859) BORROR, 1972 – WIRNSBERGER, FOISSNER & ADAM (1985) Zool. Scr. **14**: 1. **OT**: Sediment on the shore; Lake Mondsee, Upper Austria (47°49'N, 13°23'E). 2 **NP? (sd)**: 1986/36, 1986/37. **Remarks**: "Typification" not mentioned in the original paper, but subsequently herein by the original authors. Protonym: *Urostyla w.* STEIN, 1859 – Org. Infusionsthiere: 192. Nucleospecies of *Paraurostyla* BORROR, 1972 (Tab. 6).

wenzeli Hemisincirra FOISSNER, 1987 – Zool. Beitr. N. F. **31**: 216. **OT**: Mosses; island Bornholm, Baltic Sea, Denmark (55°10'N, 15°0'E). **HP** (unspecific **od** on page 190): 1988/149; **PP**: 1988/150.

wenzeli Paraenchelys FOISSNER, 1984 – Stapfia **12**: 29. **OT**: Mosses on a wall in the palace grounds of Rauisch-Holzhausen, near Gießen, Germany (50°45'N, 8°53'E). 3 **SP** (unspecific **od** on page 8): 1984/15, 1984/65, 1984/70. **Remarks**: Three slides are labelled as "holotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

wetzeli Keronopsis WENZEL, 1953 [Arch. Protistenk. **99**: 111] – BERGER & FOISSNER (1987) Zool. Jb. Syst. **114**: 203. **OT**: Lower part of a bundle of straw, which was in contact with the soil; Salzburg, Austria (47°48'N, 13°02'E). 2 **NP? (sd)**: 1986/79, 1986/80. **Remarks**: Neotypification not mentioned in paper, but slides labelled.

wilberti Strongylidium FOISSNER, 1982 – Arch. Protistenk. **126**: 32. **OT**: Soil of a riverine floodplain; Vogelsang near Grafenwörth, Lower Austria (48°24'N, 15°47'E). **HP (sd)**: 1981/97. **Remarks**: "Typification" not mentioned in the original paper, but slide designated. Currently *Hemiamphisiella w.* according to FOISSNER (1988, Stapfia **17**: 122).

wisconsinensis Odontochlamys KAHL, 1931 [Tierwelt Dtl. **21**: 240] – PETZ & FOISSNER (1997) Polar Record **33**: 309. **OT**: Mineral soil under moss; Reeve Hill, Casey Station, Antarctica (66°17'S, 110°31'E). **NP (od)**: 2000/149. **Re-**

marks: Location according to slide.

woronowiczae Sikorops FOISSNER, 1999 – Biodiversity and Conservation **8**: 326. **OT**: Soil under grass carpet; Mzima Springs in Tsavo National Park West, Kenya (2°59'S, 38°1'E). **HP (od)**: 1999/1; **PP**: 1999/2. **Remarks**: Nucleospecies (Tab. 6).

X

xantha Obertrumia DRAGESCO & DRAGESCO-KERNÉIS, 1991 – Europ. J. Protistol. **26**: 219. **OT**: Pool fed by water from Lake Tanganyika, at Bujumbura yacht-club, Burundi (3°19'S, 29°19'E). **HP (sd)**: 2003/73. **Remarks**: "Typification" not mentioned in the original paper, but slide designated.

Z

zechmeisterae Australocirrus FOISSNER, BERGER, XU & ZECHMEISTER-BOLTENSTERN, 2005 – Biodiversity and Conservation **14**: 691. **OT**: Slightly saline grassland soil; margin of the Zicklacke, a small soda lake near the town of Illmitz, Burgenland, Austria (47°45'N, 16°48'E). 2 **SP (od)**: 2007/630, 2007/631; PP: 2007/633, 2007/632. **Remarks**: The "dorsal" and the "ventral" side, respectively, have been designated as "holotype" each violating Art. 73.2 (ICZN 1999), thus symphoronts.

3.2 Further protists

aegyptia Flamella MICHEL & SMIRNOV, 1999 – Europ. J. Protistol. **35**: 409. **OT**: Mud and water of the river Nile, Egypt. **HP (od)**: 1999/101 (labelled as *F. egypti*); **PP**: 1999/102.

amphikineta Hemimastix FOISSNER, BLATTERER & FOISSNER, 1988 – Europ. J. Protistol. **23**: 380. **OT**: Upper soil layer (0-3 cm) of a bushland; Brisbane Waters National Park, north of Sidney, Australia (33°28'S, 151°20'E). **HP (od)**: 1989/83; 2 **PP**: 1989/84, 1989/85.

blaberi Nephridiophaga FABEL, RADEK & STORCH, 2001 – Europ. J. Protistol. **36**: 393. **TH**: Cockroach *Blaberus craniifer* BURMEISTER, 1838. **HL**: Northern Central America, for example Mexico and Cuba, and West Indies. 2 **HA (od)**: 1999/176 (Giemsa staining); 1999/177 (Heidenhains's iron hematoxylin). **Remarks**: The marks refer to spores, plasmodia, and merozoites.

hrdyi Trichocovina MAASS & RADEK, 2006 – Europ J. Protistol **42**: 125. **TH**: Termite *Neotermes* (*Kalotermes*) *cubanus* (SNYDER, 1922) KRISHNA, 1961. **OT**: Neotropical zoogeographic region, Cuba. **HP (od)**: 2005/75; **PP**: 2005/75.

gonderi Spiromonas FOISSNER & FOISSNER I., 1984 – Protistologica. **20**: 638. **TH**: *Colpoda* spp. (Ciliophora). **OT**: Soil of the "hell" between two lakes, the Neusiedlersee and the Oberer Stinkersee, Burgenland, Austria (47°48'N, 16°49'E). **HP (od)**: 1986/1; **PP**: 1986/2. **Remarks**: Currently *Colpodella g.* according to SIMPSON & PATTERSON (1996, Systematic-Parasitology **33**: 196).

minor Spirotrichonympha RADEK, 1997 – Europ. J. Protistol. **33**: 372. **TH**: Dry-wood termite *Kalotermes sinaicus* KEMNER, 1932. **OT**: Arid coastal zone of the Mediterranean Sea of the peninsula of Sinai, Israel (about 32°N, 35°E). **HP (od)**: 1996/30; **PP**: 1996/31.

orbistoma Pseudawerintzewia SCHÖNBORN, FOISSNER & MEISTERFELD, 1983 – Protistologica **19**: 563. **OT**: Soil of a mixed forest (Asperulo-Fagetum); near village of Baumgarten, Lower Austria (48°22'N, 15°34'E). **HP (od)**: 1982/29.

platyophryae Ciliatosporidium FOISSNER & FOISSNER, 1995 – Europ. J. Protistol. **31**: 248. **TH**: Ciliate *Platyophrya terricola* (FOISSNER, 1987). **OT**: Soil; Zion National Park, Utah, USA (37°30'N, 115°W). 2 **SP (od)**: 1997/101, 1997/100. **Remarks**: The epon-embedded material announced in the paper (inv. no. 95/10) was not deposited. Two slides yet designated, although mislabelled as "genotype" violating Art. 73.2 (ICZN 1999), thus symphoronts.

sinaica Placojoenia RADEK & HAUSMANN, 1994 – Europ. J. Protistol. **30**: 26. **TH**: Dry-wood termite *Kalotermes sinaicus* KEMNER, 1932. **OT**: Arid coastal zone of the Mediterranean Sea of the peninsula of Sinai, Israel (about 32°N, 35°E). 2 **SP** (unspecific **od**): 1993/1 (three marks), 1993/2 (three marks; both labelled as *P. sinaicus*). **Remarks**: Labels untypified, but "typification" according to the paper, which states that various other flagellates are present. Nucleospecies (Tab. 6).

termitis Monocercomonoides RADEK, 1994 – Arch. Protistenk. **144**: 374. **TH**: Dry-wood termite *Kalotermes sinaicus* KEMNER, 1932. **OT**: Arid coastal zone of the Mediterranean Sea of the peninsula of Sinai, Israel (about 32°N, 35°E). 2 **SP** (unspecific **od**): 1993/6, 1993/**7**. **Remarks**: Labels untypified, but each with three marks, thus symphoronts. The paper states that various other flagellates are present on the intestinal smears. Due to homonymy replaced by *M. hausmanni* RADEK, 1997 (Arch. Protistenk. **147**: 411).

terricola Spironema FOISSNER I. & FOISSNER, 1993 – J. Eukaryot. Microbiol. **40**: 424. **OT**: Soil; Grand Canyon, upper entrance to Bright Angel Trail, Arizona, USA (36°04'N, 112°07'E). **HP (od)**: 1997/102; 3 **PP**: 1997/103, 1997/104, 1997/105.

thermarum Echinamoeba BAUMGARTNER, YAPI, GRÖBNER-FERREIRA & STETTER, 2003 – Extremophiles **7**: 267. **OT**: Hot brook; outflow of Octopus Spring, Yellowstone National Park, Wyoming, USA (44°46'N, 110°14'W). 2 **SP** (unspecific **od**): 2002/940, 2002/941 (both haematoxylin stainings). **Remarks**: Living material of isolate OSB1 is available in the American Type Culture Collection (ATCC® Number: PRA-13) from the same site.

4 Survey of the revised collection and further "type" material

4.1 Involved persons and coverage of "typified" and untypified taxa

FOISSNER and his co-authors have described 819 new taxa from 1967 until now: 30 subspecies, 553 species, seven subgenera, 174 genera, one subfamily and 33 families; in addition, they made 396 new combinations and about 1965 redescriptions/reviews of 1361 taxa (for details see BERGER & AL-RHASHEID this volume). Jean DRAGESCO, a pioneer in developing new fixatives and impregnation techniques since the 1960s, discovered and described 315 species and subspecies of ciliates. Further contributors to the collection are summarised in Table 2; some more persons announced material in their publication(s), which is, however, not yet deposited (Tab. 3). More than 200 papers have been located referring to the collection of onomatophoronts at Linz.

However, the main contributors to the holdings of Linz, viz. W. FOISSNER and J. DRAGESCO, became aware of designating and depositing "types" only unspecific in 1974 and specifically in 1983 (BERGER et al. 1983; FOISSNER & ADAM 1983) and 1996 (DRAGESCO 1996, FOISSNER & DRAGESCO 1996a, b, DRAGESCO 1999a, b, 2002, 2003), respectively. In total about 50 % of the species established by FOISSNER and his co-workers are represented in Linz. The corresponding data for DRAGESCO are 51 species, i.e. about 16 % of his newly established ones. Thus, numerous new species have been established or redescribed, where no "types", but sometimes vouchers, could be located in Linz (Tab. 4). Some of them have been deposited in London (BMNH), Sydney (AMS) or Vienna (NHMW). Possibly, no permanent preparations exist or they may be found in the personal collections hold by the original authors. In some cases, onomatophoronts are not yet deposited (Tab. 3) or formal "typification" has seemly been forgotten par lapsus (e.g. FOISSNER 1987, FOISSNER et al. 1999, FOISSNER 2003a, FOISSNER & XU 2007). After 1999, however, these names are unavailable (ICZN 1999 Art. 16.4, 72.3).

4.2 Vouchers

Besides official "types", about 4000 voucher slides are housed in Linz, among them the original material of Bruno Maria KLEIN (1891–1968) and 1035 slides of Josef DIECKMANN (1948–1996), whose important biogeographic collection awaits more detailed studies. 88 slides of populations originally collected by Ernst BRESSLAU (1877–1935; 6 slides from 1927), John Ozro CORLISS (two slides from 1959), Alfred KAHL (1877–1946; 80 slides from 1928/29; prepared by KLEIN) and one slide of Eugène PENARD (1855–1954; via DRAGESCO) are especially noticable and of historical value. Among the vouchers several label names need to be clarified or are important species for comparison with name-bearers "typifying" a genus or even a family, e.g. *Neobursaridium gigas* – Neobursaridiidae, *Onychodromus grandis* – Onychodromusidae, *Opisthonecta henneguyi* – Opisthonectidae. Thus, Linz is a unique training possibility for beginners to become familiar with microscopic organisms, particularly ciliates. Other protist groups are only represented to a small extent: namely in about 400 slides including "types" of 12 species. 774 diatom preparations of the Austrian botanist Rudolf HANDMANN (1841–1929) are also worth to be mentioned.

Specimens labelled as "types", which they are not according to the ICZN (1999), but have been listed in AESCHT (2003) before verification, are treated in the following (excluded from Tab. 5):

(i) Nine "neotypes" of *Urotricha apsheronica*, which are in fact vouchers since "one holotype slide and several syntype slides" were deposited by ALEKPEROV at the Institute of Zoology, Academy of Sciences of Azerbaijan, Baku, Russia (cp. FOISSNER & PFISTER 1997: 329).

(ii) One "neotype" of *Uronychia binucleata* referring to SONG & WILBERT (1997: 427); however, a closer inspection showed that the deposited material is from Antarctica (labelled with "Typ", but including also other species), while the population studied in the paper was collected in China.

(iii) Three "neotypes" of *Onychodromus grandis* incorrectly referring to FOISSNER, SCHLEGEL & PRESCOTT (1987: 158), where another species of this genus is described. However, although they are labelled as "neotypes", the slides are intended as vouchers according to FOISSNER & GSCHWIND (1998: 68).

(iv) One "holotype" of *Pseudovorticella difficilis magnistriata*, which has, however, subspecific rank; thus, it is nomenclaturally inexistent (ICZN 1999 Art.15.2).

(v) One slide (inv. no. 1981/84) of *Histriculus muscorum* KAHL, 1932, mislabelled as "paratype", thus taken as subsequent "neotype" and synonym of *Sterkiella histriomuscorum* according to FOISSNER, BLATTERER, BERGER & KOHMANN (1991: 311) by AESCHT (2001: 391), should be considered as voucher. Concerning the very complicated nomenclature of this species see BERGER (1999: 683) and FOISSNER & BERGER (1999: 235).

(vi) One slide (inv. no. 1997/34) of *Colpoda cavicola* KAHL, 1935, was labelled as such and thus listed as "neotype". However, it was collected in Peru, which

does not correspond to the "type locality" given in FOISSNER, AGATHA & BERGER (2002: 910) for the subspecies *C. c. c.* Three further slides (inv. no. 1997/35-37) labelled as "syntypes" are likewise vouchers.

(vii) Two slides of *Joenia paradoxa* were deposited as "types" and the species published as new by HAUSMANN et al. (1995: 188). However, this has been intended as joke (HAUSMANN, pers. comm.) demonstrating their underestimation of nomenclature and taxonomy.

(viii) HERWALDT et al. (2003: 946) deposited one of three slides announced of *Babesia* sp. (isolate EU1) and proposed the species name *B. venatorum* "if additional evidence supports the conclusion that the organism indeed constitutes a newly described species". The authors advocated the use of the "Candidatus" concept (i.e., to propose candidates for newly described bacterial species; LAPAGE et al. 1992, ICNB) also for protozoa. It refers to organisms that had been well-characterized, including the sequencing of the small subunit RNA gene, but had not yet been cultured. At present, the protozoan name is however, unavailable according to the ICZN (1999 Art. 15.1).

Two further actual cases have likely inadvertently been designated as "types":

(i) Although FOISSNER (2003b: 114) mentiones 29 "neotype" slides of JANKOWSKI, the five slides of his own material of *Myriokaryon lieberkuehnii* are labelled as "neotypes", but herein treated as vouchers.

(ii) One slide (inv. no. 2001/7) of *Diophrys scutum* DUJARDIN, 1842 is designated by a "T[ype]" and on an external sheet of paper as "new type". However, in the respective paper, SONG & WILBERT (2002, Acta Protozool. **41**: 55) note that "no further complete descriptions are necessary" for this species, thus the slide status is relegated to a voucher.

4.3 Onomatophores

In total 779 species, among them 44 subspecies, are represented by onomatophoronts – in fact about 2000 slides – in the museum collection at Linz. 574, viz. about three quarters of these have been "typified" by a more or less specific original designation. Comparing labels and papers, "type" material of 205 species was rediscovered, thus slides are taken as subsequently designated herein by the original author if the slide is labelled or if indications such as "n. sp." or notes on an additional sheet of paper allow an inequivocal conclusion. However, about one quarter bears a question mark concerning the category of "type" and a closer inspection, i.e. comparing the original reference, marks on the slides and the ICZN (1999), revealed many discrepancies to the list of AESCHT (2003), where mainly the designations on the labels were taken into account (Tab. 5). Excluding the "paratypes" (see below), the 768 taxa with name-bearers covered in the present catalogue (Tab. 5) embrace 730 valid names (kyronyma according to DUBOIS 2000), 20 inadvertently unavailable names and 18 subjective synonyms.

11 species are represented only by "paratypes", i.e. *Colpoda variabilis*, *Edaphospathula fusioplites*, *Gonostomum franzi*, *Lacrymaria australis*, *Siroloxophyllum australe*, *Microthorax australis*, *Naxella australis*, *Oxytricha australis*, *Placus antarcticus*, *Stenosemella lacustris*, *Urosomoida agiliformis*. They are not included in Table 5, because they are no name-bearers according to the ICZN (1999; for discussion see chapter 5.1.3). Some onomatophoronts remained probably inadvertently undesignated or may be found in the personal collection of the author(s), while other were deposited in another repository.

The most important taxa concerning the chain of onomatophores from species to families, viz. 191 nucleospecies and 38 nucleogenera, are extracted in Tables 6 and 7, respectively. FOISSNER et al. (2008: 353ff.), for the first time, provided a list of supposed endemics, containing so-called flagship species which are likely the "ultimate proof" for protist endemism: 24 of the 52 listed – that is, almost 50 % – often large (>200 µm) species are housed at Linz.

For ease of classification the families with genera embraced represented in the museum are also given (Tab. 8). All names have been grouped in families on the basis of available recent literature. When it was not possible, I was obliged to adopt my own view, which obviously requires confirmation by further studies. A short list of the families quantifies the number of genera and species represented in the collection (Tab. 9). Categories above the family are not included, because they are not covered by the ICZN (1999) and in great flux. From these tables it becomes evident that at present hypotrichs, colpodids, gymnostomatids are predestined to reveal permanent preparations. The species are classified in more than 343 genera and 138 families; including 11 genera and 10 families of diverse protist groups. In 2001 my compilation revealed 1484 valid genera of ciliates (AESCHT 2001). In the meantime about 75 new ones have been established demonstrating that about 22 % of the ciliate generic diversity is documented in the museum at Linz. In his new classification, Denis LYNN (personal communication) acknowledges about 300 ciliate families; thus more than one third is represented in Austria.

4.4 "Type" localities

47 countries of approximately 291 worldwide are represented in the "type" collection (Tab. 10): one third refers to Europe, more than 25 % to Africa and around 16 % to America and Asia, respectively. Taking into account further bigger collections already summarised (COLE 1994), we are far away from understanding the global diversity of ciliates. More than one third of the species have their "type" locality in Austria, about 14 % in Namibia, around 6 % each in Antarctica, Germany, France and Australia.

Due to the focus of FOISSNER'S working group from Salzburg, more than half of the species represented in the collection has been discovered in soil, about one third in freshwater and quite low portions in the sea or other organisms (for details see Tab. 5). According to the list of "type" species of ciliate genera, 58 % of them occur in marine or freshwater habitats, 29 % are mostly symbiotic, 7 % are terrestrial and 6 % have fossil records (AESCHT 2001). This indicates that soil inhabitants are very well represented, while other habitats or niches are fairly underrepresented. Remarkable microhabitats represented are for instance a disused coconut doormat (*Eschaneustyla brachytona*), bird bath (*Parentocirrus hortualis*), ornithogenic soil (*Spathidium seppelti*), *Scarabaeus* dung balls (*Uroleptus paranotabilis*) or Walnut leaf litter (*Orthoamphisiella stramenticola*). But in general, we are also far away from understanding the local diversity because only a tiny fraction of the potential niches has ever been investigated for ciliates and other protists (FOISSNER 2006, 2007, 2008).

Table 2: Provenance of specimens in the protistan microscopic slide collection at Linz. Listed are only persons (in alphabetical order) depositing the slide(s) and their home countries, the first year of deposition, and the number of slides including vouchers. Note that often FOISSNER deposited the slides of members of his working group and that first describers and collectors can only be reconstructed referring to the literature in chapter 3.

Family name	Surname	Year	Slide(s)	State
AESCHT	Erna	1993	360	Austria
AMMERMANN	Dieter	2000	2	Germany
ASPÖCK	Horst	2003	1	Austria
BAUMGARTNER	Manuela	2002	2	Germany
BERGER	Helmut	2003	23	Austria
DIECKMANN	Josef	1993	1035*	Germany
DRAGESCO	Jean	1997	370	France
EIGNER	Peter	1993	12	Austria
FOISSNER	Wilhelm	1974	3021	Austria
KLEIN	Bruno Maria	posthumously	1041	Austria
KRAINER	Karl-Heinz	1992	28	Austria
LEIPE	Detlev	1993	3	Germany
MICHEL	Ralf	1999	2	Germany
MULISCH	Maria	1998	5	Germany
OBERSCHMIDLEITNER	Roland	1997	70	Austria
PETZ	Wolfgang	2001	205	Austria
RADEK	Renate	1993	12	Germany
SCHÖDEL	Horst	2005	29	Germany
SILVA NETO	Inacio Domingos da	1998	1	Brazil
SONNTAG	Bettina	2005	43	Austria
VOSS	Hans-Jürgen	1996	3	Germany
WILBERT	Norbert	1993	14	Germany

* mostly posthumously

Table 3: "Type" material designated and repository at Linz mentioned in the respective paper, but not yet deposited; listed in chronological order and by author(s); cp. chapter 8 for abbreviations.

Year	Author(s)	Journal	Species
1983	Foissner	Protistologica **19**	*Psilotricha succisa*
1983	Foissner & Adam	Zool. Scr. **12**	*Oxytricha granulifera*
1983	Schönborn, Foissner & Meisterfeld	Protistologie **19**	*Edaphonobiotus campascoides*
1984	Berger, Foissner & Adam	Zool. Jb. Syst. **111**	*Phialina binucleata*
1984	Foissner	Hydrobiologia **119**	*Litonotus trichocystiferus*
1984	Foissner	Schweiz. Z. Hydrol. **46**	*Trochilioides fimbriatus*
1984	Foissner, Adam & Foissner I.	Ber. Nat.-Med. Ver. Salzburg **7**	*Ophrydium eutrophicum*
1985	Foissner	Arch. Protistenk. **129**	*Grossglockneria hyalina*
1985	Foissner	Arch. Protistenk. **129**	*Pseudokreyella terricola*, *Pseudoplatyophrya terricola*
1985	Foissner	Zool. Anz. **214**	*Microthorax leptopharyngiformis*, *M. simplex*, *M. transversus*
1986	Foissner	Acta Protozool. **25**	*Stegochilum schoenborni*
1986	Foissner	Zool. Jb. Syst. **113**	*Hemisincirra muelleri*
1986	Foissner I. & Foissner	Z. Parasitenk. **72**	*Ciliomyces spectabilis*
1987	Foissner	Sber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., I. Abt. **195**	*Drepanomonas muscicola* NP, *Frontonia solea*, *Pseudomicrothorax foliformis*
1987	Wirnsberger & Foissner	Acta Protozool. **26**	*Holosticha xanthichroma*
1988	Berger & Foissner	Zool. Anz. **220**	*Territricha stramenticola*
1988	Foissner, Skogstad & Pratt	J. Protozool. **35**	*Pelagohalteria viridis* NP, *Strobilidium lacustris*
1990	Foissner	Biol. Fertil. Soils **9**	*Kuehneltiella terricola*
1990	Foissner, Oleksiv & Müller	Arch. Protistenk. **138**	*Mucotrichidium hospes* NP, *Paruroleptus gallina* NP, *Pseudobalanion planctonicum*
1992	Aescht & Foissner	Arch. Hydrobiol. Suppl. 90 **2**	*Opercularia asymmetrica* NP, *Parastrongylidium oswaldi*, *Prodiscophrya collini* NP
1992	Blatterer & Foissner	Arch. Protistenk. **142**	*Odontochlamys alpestris*, *O. convexa*
1993	Foissner I. & Foissner	J. Euk. Microbiol. **40**	*Spironema goodeyi*
1995	Foissner	Annln naturh. Mus. Wien, Ser. B Bot. Zool. **96B**	*Bryometopus hawaiiensis*
1995	Foissner	Arch. Protistenk. **145**	*Paracineta lauterborni*
1995	Foissner	Arch. Protistenk. **146**	*Kentrophoros fistulosus* NP
1995	Foissner I. & Foissner	Europ. J. Protistol. **31**	*Ciliatosporidium platyophryae*
1995	Krainer	Lauterbornia **21**	*Rimostrombidium brachykinetum*, *R. lacustris*
1995	Krainer & Müller	Europ. J. Protistol. **31**	*Histiobalantium bodamicum*
1996	Foissner	Arch. Protistenk. **146**	*Apocryptopharynx hippocampoides*, *Cryptopharynx setigerus*
1996	Foissner	Biol. Fertil. Soils **23**	*Oxytricha ottowi*
1996	Foissner	Europ. J. Protistol. **32**	*Prototrachelocerca caudata* NP, *P. fasciolata* NP, *Remanella multinucleata*
1996	Foissner & Dragesco	Arch. Protistenk. **147**	*Tracheloraphis aragoi*
1996	Foissner & Dragesco	J. Euk. Microbiol. **43**	*Trachelolophos filum*
1997	Foissner	Acta Protozool. **36**	*Kovalevaia sulcata* VO, *Trachelocerca incaudata* NP, *Trachelotractus entzi* NP
1997	Foissner	Rev. Soc. Mex. Hist. Nat. **47**	*Lopezoterenia torpens*, *Paraspathidium fuscum*
1998	Agatha & Riedel-Lorjé	Europ. J. Protistol. **34**	*Rimostrombidium caudatum* NP, *R. conicum* NP
1998	Foissner & Gschwind	Ber. naturw.-med. Ver. Salzburg **12**	*Oxytricha setigera* NP
1999	Foissner & AL-Rasheid	Europ. J. Protistol. **35**	*Sultanophrys arabica*
2000	Foissner & Korganova	Acta Protozool. **39**	*Centropyxis aerophila* VO
2001	Meisterfeld, Holzmann & Pawlowski	Protist **152**	*Edaphoallogromia australica*
2002	Baumgartner, Stetter & Foissner	J. Euk. Microbiol. **49**	*Trimyema minutum*
2002	Foissner & Song	Europ. J. Protistol. **38**	*Apofrontonia lamentschwandtneri*
2002	Song & Wilbert	Acta Protozool. **41**	*Aegyriana paroliva*
2002	Song & Wilbert	Acta Protozool. **41**	*Metanophrys antarctica*, *Orthodonella shenae*
2003	Agatha	Europ. J. Protistol. **39**	*Strombidinopsis minima* NP
2003	Agatha	Europ. J. Protistol. **39**	*Novistrombidium aspheronicum* VO, *Strombidium arenicola* NP

Tab. 3: continued

Year	Author(s)	Journal	Species
2003	Dragesco	Trav. Mus. natl. Hist. nat. "Grigore Antipa" **45**	*Pleurotricha multinucleata*
2003	Foissner	Acta Protozool. **42**	*Bromeliophrya brasiliensis*, *Cephalospatula brasilensis*
2003	Foissner	Europ. J. Protistol. **39**	*Colpoda brasiliensis*, *Lambornella trichoglossa*, *Pseudomaryna australiensis*
2004	Foissner & Lei	Linzer biol. Beitr. **36**	*Apobryophyllum sulcatum*, *Bryophyllum longisetum*, *Neobryophyllum penardi* NP
2005	Agatha, Strüder-Kypke, Beran & Lynn	Europ. J. Protistol. **41**	*Pelagostrobilidium neptuni* VO, *Strombidium biarmatum*
2005	Foissner	Europ. J. Protistol. **41**	*Luporinophrys micelae, Sleighophrys pustulata*
2005	Foissner, Berger, Xu & Zechmeister-Boltenstern	Biodiversity & Conservation **14**	*Latispathidium truncatum bimicronucleatum*
2005	Foissner, Xu & Kreutz	J. Eukaryot. Microsc. **52**	*Rhinothrix porculus* NP
2005	Wilbert & Song	J. Nat. Hist. 39	*Amphisiella antarctica, Dysteria parovalis, Hemigastrostyla szaboi, Intranstylum antarcticum, Pithites pelagicus, Strombidium apolatum, Thigmokeronopsis magna*
2006	Agatha & Riedel-Lorjé	Acta Protozool. **45**	*Tintinnopsis cylindrica* NP
2006	Naqvi, Gupta, Borgohain, Sapra	Acta Protozool. **45**	*Rubrioxytricha indica*
2007	Foissner & Al-Rasheid	Acta Protozool. **46**	*Apobryophyllum schmidingeri, Keronopsis schminkei*

Table 4: Species and subspecies established by Foissner or Dragesco (and co-authors, respectively), but without as yet designated (aphory) and deposited "type" material. For ease of use the family is included and a reference to voucher(s; VO). Replacement names have been omitted. Of the 378 taxa included, 261 have been described by Dragesco and 117 by Foissner.

Taxon	Family	VO
Acanthodiophrya almae Puytorac & Dragesco, 1969	Radiophryidae	
Alinostoma plurivacuolatum Deroux & Dragesco, 1968	Chilodonellidae	
Almophrya almae Puytorac & Dragesco, 1969	Anoplophryidae	
Amphisiella faurei Dragesco, 1963	Amphisiellidae	
Apobryophyllum sulcatum Foissner & Lei, 2004	Spathidiidae	
Apocolpoda africana Foissner, 1993	Colpodidae	
Arcuospathidium virugense Foissner & Xu, 2007	Arcuospathidiidae	
Aspidisca fjeldi Dragesco, 1960	Aspidiscidae	
Aspidisca hyalina Dragesco, 1960	Aspidiscidae	
Aspidisca major faurei Dragesco, 1960	Aspidiscidae	
Aspidisca tridentata Dragesco, 1963	Aspidiscidae	
Balladyna euplotes Dragesco, 1960	Kahliellidae	
Banyulsella viridis Dragesco, 1954	Banyulsellidae	
Blepharisma multinucleatum Dragesco, 1960	Spirostomidae	
Brachonella caenomorphoides Foissner, 1980	Metopidae	
Bryometopus balantidioides Foissner, 1993	Bryometopidae	
Bryometopus chlorelligerus Foissner, 1980	Bryometopidae	
Bryometopus edaphonus Foissner, 1980	Bryometopidae	
Bryometopus magnus Foissner, 1980	Bryometopidae	
Bryometopus triquetrus Foissner, 1993	Bryometopidae	
Bryometopus viridis Foissner, 1987	Bryometopidae	
Bursaria caudata Dragesco, 1972	Bursariidae	

Taxon	Family	VO
Cardiostoma mononucleata Dragesco, 1963	Loxocephalidae	
Cardiostomatella minuta Dragesco, 1965	Loxocephalidae	
Centrophorella faurei Dragesco, 1954	Kentrophoridae	
Centrophorella grandis Dragesco, 1954	Kentrophoridae	
Centrophorella longissima Dragesco, 1954	Kentrophoridae	
Centrophorella minuta Dragesco, 1960	Kentrophoridae	
Centrophorella trichocystus Dragesco, 1954	Kentrophoridae	
Centropyxis oomorpha Schönborn, Foissner & Meisterfeld, 1983	Centropyxidae	
Chaenea psammophila Dragesco, 1960	Trachelophyllidae	
Cheissinophrya knoeppfleri Puytorac & Dragesco, 1969	Radiophryidae	
Chilodonella minuta Dragesco, 1966	Chilodonellidae	
Chilodonella plurivacuolata Deroux & Dragesco, 1968	Chilodonellidae	
Chilodonella psammophila Dragesco, 1960	Chilodonellidae	
Chilodonella schedoeublepharis Dragesco & Dragesco-Kernéis, 1986	Chilodonellidae	
Chlamydodon minutus Dragesco, 1965	Chlamydodontidae	
Chlamydodon roseus Dragesco, 1966	Chlamydodontidae	
Chlamydonellopsis polonica Foissner, Czapik & Wiackowski, 1981	Lynchellidae	
Ciliofaurea brunea Dragesco, 1965	incertae sedis	
Ciliofaurea longissima Dragesco, 1960	incertae sedis	
Circinella filiformis Foissner, 1982	Orthoamphisiellidae	
Cirrophrya australis Foissner, 1993	Platyophryidae	

Tab. 4: continued

Taxon	Family	VO
Climacostomum minimum Foissner, 1980	Climacostomidae	
Coelophrya roquei Puytorac & Dragesco, 1969	Radiophryidae	
Coelosomides teissieri Dragesco, 1954	Coelosomididae	
Coleps arenicolus Dragesco, 1965	Colepidae	
Coleps quadrispinus Foissner, 1983	Colepidae	
Colpoda oblonga Dragesco, 1972	Colpodidae	
Colpoda orientalis Foissner, 1993	Colpodidae	
Colpoda ovinucleata Foissner, 1980	Colpodidae	
Colpoda rotunda Foissner, 1980	Colpodidae	
Condylostoma acuta Dragesco, 1960	Condylostomatidae	
Condylostoma enigmatica Dragesco, 1954	Condylostomatidae	
Condylostoma kahli Dragesco, 1960	Condylostomatidae	
Condylostoma minuta Dragesco, 1954	Condylostomatidae	
Condylostoma nigra Dragesco, 1960	Condylostomatidae	
Condylostoma remanei oxyoura Dragesco, 1960	Condylostomatidae	
Condylostoma wangi Foissner & Wölfl, 1994	Condylostomatidae	
Contophrya chachoni Puytorac & Dragesco, 1969	Contophryidae	
Corlissia picta Dragesco, 1954	Corlissiidae	
Cosmocolpoda naschbergeri Foissner, 1993	Colpodidae	
Cryptopharynx enigmaticus Dragesco, 1954	Cryptopharyngidae	
Cryptopharynx kahli Dragesco, 1954	Cryptopharyngidae	
Cryptopharynx mauritanicus Dragesco, 1954	Cryptopharyngidae	
Cryptopharynx multinucleatum Dragesco, 1960	Cryptopharyngidae	
Cryptopharynx setigerum furcatum Dragesco, 1960	Cryptopharyngidae	
Cultellothrix japonica Foissner, 1988	Arcuospathidiidae	
Cyclidium plouneouri Dragesco, 1963	Cyclidiidae	
Cyrtohymena primicirrata Berger & Foissner, 1987	Oxytrichidae	VO
Cyrtolophosis colpidiformis Foissner, 1993	Cyrtolophosididae	
Dexiotricha polystyla Foissner, 1987	Loxocephalidae	
Dicoelophrya almae Puytorac & Dragesco, 1969	Radiophryidae	
Dicoelophrya calliste Puytorac & Dragesco, 1969	Radiophryidae	
Dicontophrya grassei Puytorac & Dragesco, 1969	Contophryidae	
Dileptus aculeatus Dragesco, 1960	Tracheliidae	
Dileptus estuarinus Dragesco, 1960	Tracheliidae	
Dileptus gabonensis Dragesco, 1963	Tracheliidae	
Dileptus grandis Dragesco, 1963	Tracheliidae	
Dileptus jonesi Dragesco, 1963	Tracheliidae	
Dileptus marouensis Dragesco, 1963	Tracheliidae	
Dileptus thononensis Dragesco, 1960	Tracheliidae	
Dileptus visscheri Dragesco, 1963	Tracheliidae	
Diophrys kahli Dragesco, 1963	Uronychiidae	
Discocephalus ehrenbergi Dragesco, 1960	Discocephalidae	
Discocephalus grandis Dragesco, 1954	Discocephalidae	
Discocephalus minimus Dragesco, 1968	Discocephalidae	
Drepanomonas lunaris Foissner, 1979	Microthoracidae	
Dysteria meridionalis Dragesco, 1966	Dysteriidae	
Dysteria spinifera Dragesco, 1966	Dysteriidae	

Taxon	Family	VO
Enchelydium alpinum Foissner, 1980	Enchelyidae	
Enchelydium simile Foissner, 1980	Enchelyidae	
Enchelydium trichocystis Foissner, 1980	Enchelyidae	
Enchelyodon camerounensis Dragesco, 1965	Trachelophyllidae	
Enchelyodon kenyaensis Foissner, Agatha & Berger, 2002	Trachelophyllidae	
Enchelyodon multinucleata Dragesco & Dragesco-Kernéis, 1979	Trachelophyllidae	
Enchelyodon spathidiiformis Dragesco, 1966	Trachelophyllidae	
Enchelyodon vacuolatus Dragesco, 1960	Trachelophyllidae	
Enchelys binucleata Foissner, 1983	Enchelyidae	
Enchelys geleii Foissner, 1981	Enchelyidae	VO
Epistylis alpestris Foissner, 1978	Epistylididae	
Eschaneustyla terricola Foissner, 1982	Epiclintidae	
Euplotes aberrans Dragesco, 1960	Euplotidae	
Euplotes patella lemani Dragesco, 1960	Euplotidae	
Euplotes platystoma Dragesco & Dragesco-Kernéis, 1986	Euplotidae	
Euplotes roscoffensis Dragesco, 1966	Euplotidae	
Euplotes thononensis Dragesco, 1960	Euplotidae	
Faurea arenicola Dragesco, 1954	incertae sedis	
Faurea ornata Dragesco, 1954	incertae sedis	
Frontonia aberrans Dragesco, 1960	Frontoniidae	
Frontonia ambigua Dragesco, 1972	Frontoniidae	
Frontonia bullingtoni Dragesco, 1960	Frontoniidae	
Frontonia caneti Dragesco, 1960	Frontoniidae	
Frontonia macrostoma Dragesco, 1960	Frontoniidae	
Frontonia vacuolata Dragesco, 1960	Frontoniidae	
Gastrostyla dorsicirrata Foissner, 1982	Oxytrichidae	
Geleia acuta Dragesco, 1960	Geleiidae	
Geleia gigas Dragesco, 1954	Geleiidae	
Geleia hyalina Dragesco, 1960	Geleiidae	
Geleia luci Dragesco, 1960	Geleiidae	
Geleia obliqua Dragesco, 1960	Geleiidae	
Geleia swedmarki Dragesco, 1954	Geleiidae	
Geleia tenuis Dragesco, 1954	Geleiidae	
Geleia vacuolata Dragesco, 1960	Geleiidae	
Gruberia binucleata Dragesco, 1960	Spirostomidae	
Halteria faurei Dragesco & Dragesco-Kernéis, 1986	Halteriidae	
Halteria tamari Dragesco & Dragesco-Kerneis, 1986	Halteriidae	
Haplocaulus terrenus Foissner, 1981	Vorticellidae	VO
Hartmannula angustipilosa Dragesco & Deroux, 1968	Hartmannulidae	
Hartmannulopsis dysteriana Deroux & Dragesco, 1968	Dysteriidae	
Helicoprorodon barbatus Dragesco, 1954	Helicoprorodontidae	
Helicoprorodon maximus Dragesco, 1954	Helicoprorodontidae	
Helicoprorodon multinucleatum Dragesco, 1960	Helicoprorodontidae	
Heminotus monilatus Dragesco & Dragesco-Kerneis, 1986	Litonotidae	
Hemiophrys lanceolatus Dragesco, 1965	Amphileptidae	
Hemiophrys loxophylliforme Dragesco, 1960	Amphileptidae	
Hemiophrys plurivacuolatus Foissner, 1978	Amphileptidae	

Tab. 4: continued

Taxon	Family	VO
Histiobalantium marinum major Dragesco, 1960	Histiobalantiidae	
Histriculus admirabilis Foissner, 1980	Oxytrichidae	
Histrio lemani Dragesco, 1960	Metopidae	
Holophrya africana Dragesco, 1965	Holophryidae	
Holophrya gelei Dragesco, 1966	Holophryidae	
Holophrya lemani Dragesco, 1966	Holophryidae	
Holophrya vorax Dragesco, 1960	Holophryidae	
Holosticha camerounensis Dragesco, 1970	Holostichidae	
Holosticha contractilis Dragesco, 1970	Holostichidae	
Holosticha gracilis Foissner, 1982	Holostichidae	
Holosticha interrupta Dragesco, 1966	Holostichidae	
Homalozoon minutus Dragesco, 1966	Homalozoidae	
Homalozoon multinucleatum Dragesco, 1966	Homalozoidae	
Ilsiella palustris Foissner, 1993	Marynidae	VO
Jaroschia sumptuosa Foissner, 1993	Jaroschiidae	
Kahliella marina Foissner, Adam & Foissner, 1982	Kahliellidae	
Kahliella multiseta Dragesco, 1970	Kahliellidae	
Keronopsis arenicola Dragesco, 1963	Holostichidae	
Keronopsis arenivorus Dragesco, 1954	Holostichidae	
Keronopsis longissima Dragesco & Dragesco-Kernéis, 1986	Holostichidae	
Keronopsis macrostoma Dragesco, 1963	Holostichidae	
Keronopsis thononensis Dragesco, 1966	Holostichidae	
Kreyella minuta Foissner, 1979	Kreyellidae	
Kuehneltiella muscicola Foissner, 1993	Colpodidae	
Kuklikophrya ougandae Dragesco, 1972	Woodruffiidae	VO
Lacazea ovalis Dragesco, 1960	Lacazeidae	
Lacrymaria balechi Dragesco, 1954	Lacrymariidae	
Lacrymaria caudata lemani Dragesco, 1960	Lacrymariidae	
Lacrymaria delamarei Dragesco, 1954	Lacrymariidae	
Lacrymaria kahli Dragesco, 1954	Lacrymariidae	
Lacrymaria longissima Dragesco, 1966	Lacrymariidae	
Lacrymaria maurea Dragesco, 1965	Lacrymariidae	
Lacrymaria minuta Dragesco, 1963	Lacrymariidae	
Lacrymaria multinucleata Dragesco, 1954	Lacrymariidae	
Lacrymaria rotundata Dragesco, 1954	Lacrymariidae	
Lacrymaria trichocystus Dragesco, 1954	Lacrymariidae	
Lagynus verrucosa Foissner, 1983	Lagynidae	
Lambornella trichoglossa Foissner, 2003	Tetrahymenidae	
Laurentia macrostoma Dragesco, 1966	Oxytrichidae	
Laurentiella macrostoma Dragesco & Njiné, 1971	Oxytrichidae	
Lembadion bullinum arenicola Dragesco, 1960	Lembadionidae	
Lembadion gabonensis Dragesco, 1965	Lembadionidae	
Lionotus dusarti Dragesco, 1960	Litonotidae	
Lionotus elongatus Dragesco, 1957	Litonotidae	
Litonotus alpestris Foissner, 1978	Litonotidae	
Litonotus caudatus Dragesco, 1966	Litonotidae	
Litonotus quadrinucleatus Dragesco & Njiné, 1971	Litonotidae	
Litonotus uninucleatus Foissner, 1978	Litonotidae	

Taxon	Family	VO
Loxodes kahli Dragesco & Njiné, 1971	Loxodidae	
Loxodes penardi Dragesco, 1960	Loxodidae	
Loxophyllum acutum Dragesco, 1965	Loxophyllidae	
Loxophyllum compressum Dragesco, 1965	Loxophyllidae	
Loxophyllum fasciolatus Dragesco, 1966	Loxophyllidae	
Loxophyllum fibrillatum Dragesco, 1954	Loxophyllidae	
Loxophyllum helus minimus Dragesco, 1960	Loxophyllidae	
Loxophyllum kahli Dragesco, 1960	Loxophyllidae	
Loxophyllum lanceolatum Dragesco, 1954	Loxophyllidae	
Loxophyllum psammophyllum Dragesco, 1954	Loxophyllidae	
Loxophyllum pseudosetigerum Dragesco, 1954	Loxophyllidae	
Loxophyllum raikovi Dragesco, 1965	Loxophyllidae	
Loxophyllum setigerum fibrillatus Dragesco, 1960	Loxophyllidae	
Loxophyllum variabilis Dragesco, 1954	Loxophyllidae	
Loxophyllum vitraeum Dragesco, 1965	Loxophyllidae	
Malacophrys viridis Foissner, 1980	Malacophryidae	
Metaradiophrya almae Puytorac & Dragesco, 1968	Radiophryidae	
Metopus alpestris Foissner, 1980	Metopidae	
Metopus bothrostomiformis Foissner, 1980	Metopidae	
Metopus jankowski Dragesco, 1968	Metopidae	
Metopus lemani Dragesco, 1960	Metopidae	
Metopus turbo Dragesco & Dragesco-Kerneis, 1986	Metopidae	
Microdiaphanosoma terricola Foissner, 1993	Kreyellidae	
Mykophagophrys terricola Foissner, 1985	Grossglockneriidae	
Nassula georgiana Dragesco, 1972	Nassulidae	
Nassula ougandae Dragesco, 1972	Nassulidae	
Nassula tuberculata Foissner, Agatha & Berger, 2002	Nassulidae	VO
Nassulopsis paucivacuolata Foissner, 1979	Nassulopsidae	
Naxella minuta Dragesco & Dragesco-Kerneis, 1986	Nassulidae	
Notoxoma parabryophryides Foissner, 1993	Bryophryidae	
Notoxoma sigmoides Foissner, 1993	Bryophryidae	
Opercularia archiorbopercularia Foissner, 1979	Operculariidae	
Opercularia venusta Foissner, 1979	Operculariidae	
Ophrydium eutrophicum Foissner, 1979	Ophrydiidae	
Ophryodendron roscoffensis Batisse & Dragesco, 1967	Ophryodendridae	
Ophryoglena catenulopsis Dragesco & Njiné, 1971	Ophryoglenidae	
Opisthonecta bivacuolata Foissner, 1978	Opisthonectidae	
Opisthonecta dubia Foissner, 1975	Opisthonectidae	
Opisthotricha macrostoma Dragesco, 1972	Oxytrichidae	
Orbopercularia nodosa Foissner, 1979	Opercularidae	
Oxytricha buitkampi Dragesco & Dragesco-Kernéis, 1986	Oxytrichidae	
Oxytricha enigmatica Dragesco & Dragesco-Kernéis, 1986	Oxytrichidae	
Oxytricha granulifera quadricirrata Blatterer & Foissner, 1988	Oxytrichidae	
Oxytricha longissima Dragesco & Njine, 1971	Oxytrichidae	

Tab. 4: continued

Taxon	Family	VO
Oxytricha minor Dragesco, 1966	Oxytrichidae	
Oxytricha multiseta Dragesco, 1966	Oxytrichidae	
Oxytricha pseudofusiformis Dragesco & Dragesco-Kerneis, 1986	Oxytrichidae	
Paracondylostoma setigerum Foissner, 1980	Bursaridiidae	
Paradileptus canellai Dragesco, 1966	Tracheliidae	
Paradileptus minutus Dragesco, 1972	Tracheliidae	
Paraenchelys spiralis Foissner, 1983	Pseudoholophryidae	
Parameciun jankowskii Dragesco, 1972	Parameciidae	
Parameciun pseudotrichium Dragesco, 1970	Parameciidae	
Parameciun ugandae Dragesco, 1972	Parameciidae	
Paraspathidium olbiquum Dragesco, 1963	Plagiopylidae	
Paraurostyla enigmatica Dragesco & Dragesco-Kernéis, 1986	Kahliellidae	
Paruroleptus notabilis Foissner, 1982	Urostylidae	VO
Paurotricha cyclidiformis Dragesco & Dragesco-Kernéis, 1991	Cyclidiidae	
Perisincirra interrupta Foissner, 1982	Oxytrichidae	
Perisincirra viridis Foissner, 1982	Oxytrichidae	
Peritromus arenicolus Dragesco, 1965	Peritromidae	
Phialina macrostoma Foissner, 1983	Trachelophyllidae	
Pithites vorax Deroux & Dragesco, 1968	Plesiotrichopidae	
Plagiocampa difficilis Foissner, 1981	Plagiocampidae	
Plagiocampa terricola Dragesco & Dragesco-Kerneis, 1986	Plagiocampidae	
Platyophrya citrina Foissner, 1980	Platyophryidae	
Platyophrya hyalina Foissner, 1980	Platyophryidae	
Platyophrya macrostoma Foissner, 1980	Platyophryidae	
Platyophryides magnus Foissner, 1993	incertae sedis	
Pleuronema arenicola Dragesco, 1960	Pleuronematidae	
Pleuronema borrori Dragesco, 1968	Pleuronematidae	
Pleuronema grassei Dragesco, 1960	Pleuronematidae	
Pleuronema oculata Dragesco, 1960	Pleuronematidae	
Pleuronema roscoffensis Dragesco, 1968	Pleuronematidae	
Pleuronema simplex Dragesco, 1960	Pleuronematidae	
Pleuronema smalli Dragesco, 1968	Pleuronematidae	
Pleurotricha macrostoma Dragesco, 1970	Rigidotrichidae	
Ponturostyla enigmatica Dragesco & Dragesco-Kernéis, 1986	Kahliellidae	
Prorodon africanus Dragesco, 1970	Prorodontidae	
Prorodon amarus Dragesco & Dragesco-Kernéis, 1986	Prorodontidae	
Prorodon arenarius Dragesco, 1954	Prorodontidae	
Prorodon binucleatus Dragesco, 1965	Prorodontidae	
Prorodon bivacuolatus Dragesco & Dragesco-Kernéis, 1986	Prorodontidae	
Prorodon cinctum Foissner, 1983	Prorodontidae	
Prorodon deflandrei Dragesco, 1960	Prorodontidae	
Prorodon diaphanus Dragesco, 1960	Prorodontidae	
Prorodon laurenti Dragesco, 1966	Prorodontidae	
Prorodon lemani Dragesco, 1965	Prorodontidae	
Prorodon meridionalis Dragesco, 1966	Prorodontidae	
Prorodon multinucleatus Dragesco, 1954	Prorodontidae	
Prorodon nucleolatus magnus Dragesco, 1960	Prorodontidae	
Prorodon parafricanus Dragesco & Dragesco-Kernéis, 1986	Prorodontidae	
Prorodon penardi Dragesco, 1954	Prorodontidae	
Prorodon teres lemani Dragesco, 1960	Prorodontidae	
Prorodon trichocystus Dragesco, 1954	Prorodontidae	
Prorodon vacuolatus Dragesco, 1960	Prorodontidae	
Prorodon vermiforme Dragesco, 1960	Prorodontidae	
Protoopalina symphysodonis Foissner, Schubert & Wilbert, 1979	Opalinidae	
Protospathidium vermiforme Foissner, Agatha & Berger, 2002	Protospathidiidae	
Pseudochilodonopsis kloiberi Foissner, 1979	Chilodonellidae	
Pseudocyrtolophosis terricola Foissner, 1993	Cyrtolophosididae	
Pseudomicrothorax foliformis Foissner, 1987	Pseudomicro-thoracidae	
Pseudoprorodon protrichocystus Dragesco, 1960	Prorodontidae	
Pseudovorticella pseudocampanula Foissner, 1979	Vorticellidae	
Pseudovorticella quadrata Foissner, 1979	Vorticellidae	
Pseudovorticella sauwaldensis Foissner & Schiffmann, 1979	Vorticellidae	
Remanella caudata Dragesco, 1954	Loxodidae	
Remanella gigas Dragesco, 1954	Loxodidae	
Remanella levii Dragesco, 1960	Loxodidae	
Remanella microstoma Dragesco, 1954	Loxodidae	
Remanella minuta Dragesco, 1954	Loxodidae	
Remanella swedmarki Dragesco, 1954	Loxodidae	
Remanella trichocystus Dragesco, 1954	Loxodidae	
Reticulowoodruffia terricola Foissner, 1993	Reticulo-woodruffiidae	VO
Rhabdostoma roscoffensis Dragesco, 1960	Prorodontidae	
Rhabdostyla dubia Foissner, 1979	Epistylididae	
Rostrophrya terricola Foissner, 1993	Woodruffiidae	
Songophrya armata Foissner, 2003	Myriokaryonidae	
Spathidium binucleatum Dragesco, 1966	Spathidiidae	
Spathidium muscorum Dragesco & Dragesco-Kernéis, 1979	Spathidiidae	VO
Spathidium rusticanum Foissner, 1981	Spathidiidae	VO
Spathidium tortum Foissner, 1980	Spathidiidae	
Sphaerophrya parurolepti Foissner, 1980	Podophryidae	
Steinia simplex Dragesco, 1966	Oxytrichidae	
Stentor araucanus Foissner & Wölfl, 1994	Stentoridae	
Stentor caudatus Dragesco, 1970	Stentoridae	
Stentor pallidus Foissner, 1980	Stentoridae	
Stereonema geiseri Foissner & Foissner, 1993	Spironemidae	
Strombidium arenicola Dragesco, 1960	Strombidiidae	
Strombidium faurei Dragesco, 1960	Strombidiidae	
Strombidium kahli Dragesco & Dragesco-Kernéis, 1986	Strombidiidae	
Strombidium macronucleatum Dragesco, 1960	Strombidiidae	
Strombidium meganucleatum Dragesco & Dragesco-Kernéis, 1986	Strombidiidae	
Strombidium sauerbrayae fourneleti Dragesco, 1960	Strombidiidae	
Strongylidium arenicolus Dragesco, 1954	Spirofilidae	

Tab. 4: continued

Taxon	Family	VO
Strongylidium microstoma Dragesco & Dragesco-Kernéis, 1986	Spirofilidae	
Stylonychia kahli Dragesco, 1966	Oxytrichidae	
Stylonychia ovalis Dragesco, 1966	Oxytrichidae	
Tectohymena terricola Foissner, 1993	Tectohymenidae	
Teuthophrys trisulca africana Dragesco & Dragesco-Kerneis, 1986	Teuthophryidae	
Tillina gigantea Dragesco, 1972	Colpodidae	
Trachelocerca aragoi Dragesco, 1954	Trachelocercidae	
Trachelocerca binucleata Dragesco, 1960	Trachelocercidae	
Trachelocerca geopetiti Dragesco, 1954	Trachelocercidae	
Trachelocerca gracilis Dragesco, 1954	Trachelocercidae	
Trachelocerca lacrymariae Dragesco, 1954	Trachelocercidae	
Trachelocerca minuta Dragesco, 1960	Trachelocercidae	
Trachelocerca multinucleata Dragesco, 1960	Trachelocercidae	
Trachelonema grassei Dragesco, 1960	Trachelocercidae	
Trachelonema minima Dragesco, 1960	Trachelocercidae	
Trachelophyllum hyalinum Foissner, 1983	Trachelophyllidae	
Tracheloraphis africanus Dragesco, 1965	Trachelocercidae	
Tracheloraphis beninensis Dragesco & Dragesco-Kernéis, 1986	Trachelocercidae	
Tracheloraphis caudatus Dragesco & Raikov, 1966	Trachelocercidae	
Tracheloraphis drachi Dragesco, 1960	Trachelocercidae	
Tracheloraphis enigmaticus Dragesco, 1960	Trachelocercidae	
Tracheloraphis gracilis Dragesco, 1960	Trachelocercidae	
Tracheloraphis hyalinum Dragesco, 1960	Trachelocercidae	
Tracheloraphis monocaryon Dragesco, 1965	Trachelocercidae	
Tracheloraphis prenanti Dragesco, 1960	Trachelocercidae	

Taxon	Family	VO
Tracheloraphis remanei Dragesco, 1960	Trachelocercidae	
Tracheloraphis swedmarki Dragesco, 1960	Trachelocercidae	
Tracheloraphis teissieri Dragesco, 1960	Trachelocercidae	
Trachelostyla dubia Dragesco, 1954	Trachelostylidae	
Trachelostyla spiralis Dragesco & Dragesco-Kernéis, 1986	Trachelostylidae	
Trichototaxis aeruginosa Foissner, 1980	Pseudourostylidae	
Trithigmostoma alpestris Foissner, 1979	Chilodonellidae	
Trithigmostoma pituitosum Foissner, 1979	Chilodonellidae	
Trochilia petrani Dragesco, 1966	Trochiliidae	
Urosoma acuta Dragesco, 1972	Oxytrichidae	
Urosoma salmastra Dragesco & Dragesco-Kernéis, 1986	Oxytrichidae	
Urospinula simplex Dragesco & Dragesco-Kernéis, 1986	Spirofilidae	
Urostyla chlorelligera Foissner, 1980	Urostylidae	
Urostyla latissima Dragesco, 1970	Urostylidae	
Urotricha armata Dragesco, 1960	Urotrichidae	
Urotricha dragescoi Foissner, 1984	Urotrichidae	
Urotricha macrostoma Foissner, 1983	Urotrichidae	
Urotricha puytoraci Dragesco, Iftode & Fryd-Versavel, 1974	Urotrichidae	
Vorticella alpestris Foissner, 1979	Vorticellidae	
Vorticella hamatella Foissner, 1987	Vorticellidae	
Vorticella opercullariformis Foissner, 1979	Vorticellidae	
Wallackia schiffmanni Foissner, 1976	Kahliellidae	
Woodruffia australis Foissner, 1993	Woodruffiidae	
Zoothamnium asellicola Foissner, 1987	Zoothamniidae	

Table 5: The 768 taxa, among them 44 subspecies, represented by onomatophoronts in the collection at Linz embrace 20 nomenclaturally unavailable, 18 subjective synonyms and 730 taxonomically valid nomina. Included is their habitat, category of "type" and number of slide(s) in the present catalogue compared to the data in the list of Aescht (2001). H – habitat; HA – "hapantotype"; HT – "holotype"; lim – limnic; mar – marine; NT – "neotype"; par – parasitic; ref. – page number in the latter reference; ss – junior subjective synonym; ST – "syntype"; ter – terrestrial; see chapter 8 for further abbreviations.

Species	**H**	**HP**	**SP**	**HA**	**NP**	**ref.**	**HT**	**ST**	**HA**	**NT**
Acropisthium mutabile	ter				2	391				2
Actinobolina multinucleata	ter	1				391	1			
Actinobolina smalli	lim				2	396				2
Actinorhabdos trichocystiferus	lim		2			398		2		
Afroamphisiella abdita	ter	1				379	1			
Afroamphisiella multinucleata	ter	1				391	1			
Afrothrix darbyshirei	ter	1				384	1			
Afrothrix multinucleata	ter	1				391	1			
Alinostoma burkli	lim	1				382	1			
Amphileptus piger	ter				25	–				
Amphisiella annulata	mar				5	–				
Amphisiella australis	ter	1				381	1			
Amphisiella binucleata multicirrata	ter	1				382	1			
Amphisiella edaphoni	ter	1				384	1			
Amphisiella elegans	ter	1				385	1			
Amphisiella longiseries	ter	1				389	1			
Amphisiella magnigranulosa	ter	1				390	1			
Amphisiella multinucleata	ter	1				391	1			
Amphisiella namibiensis	ter	1				392	1			
Amphisiella procera	ter	1				394	1			
Amphisiella terricola	ter				2	397				2
Amphisiella vitiphila	ter	1				399	1			
Amphisiellides illuvialis	ter	1				388		4		
Anatoliocirrus capari	ter	1				382	1			
Anigsteinia clarissima	mar				3	–				
Anteholosticha adami	ter	1				379	1			
Anteholosticha australis	ter	1				381	1			
Anteholosticha bergeri	ter	1				–				
Anteholosticha brachysticha	ter	1				382	1			
Anteholosticha sigmoidea	ter	1				396	1			
Apertospathula armata	ter	1				380	1			
"*Apertospathula cuneata*"	ter	1				–				
Apertospathula dioplites	ter	1				384	1			
Apertospathula inermis	ter	1				388	1			
"*Apertospathula lajacola*"	lim	1				–				
"*Apertospathula longiseta*"	ter	1				–				
"*Apertospathula pelobia*"	ter	1				–				
"*Apertospathula similis*"	ter	1				–				
Apertospathula verruculifera	ter	1				–				
Apoamphisiella tihanyiensis	ter				3	398				3
Apobryophyllum etoschense	ter	1				385	1			
Apobryophyllum terricola	ter		2			397	1			
Apobryophyllum vermiforme	ter	1				399	1			
Apocolpodidium (Apocolpodidium) etoschense	ter	1				385	1			
Apocolpodidium (Phagoon) macrostoma	ter	1				389	1			
Apocyclidium obliquum	ter				6	392				7
Apoenchelys bamforthi	ter	1				381	1			
Apospathidium terricola	ter	1				397	1			
Apourosomoida halophila	ter	1				387	1			
Arcuospathidium australe ss?	ter		1			381	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Arcuospathidium bulli	ter	1				382	1			
Arcuospathidium cooperi	ter	1				383	1			
Arcuospathidium cultriforme	ter				2	384				2
Arcuospathidium cultriforme megastoma	ter	1				384	1			
"Arcuospathidium deforme"	ter	1				–				
Arcuospathidium etoschense	ter	1				385	1			
Arcuospathidium japonicum	ter	1				388	1			
Arcuospathidium lionotiforme ss?	ter				4	389				
Arcuospathidium lorjeae	ter	1				389	2			
Arcuospathidium multinucleatum	ter	1				391	1			
"Arcuospathidium muscorum rhopaloplites"	ter	1				–				
Arcuospathidium namibiense namibiense	ter	1				392	1			
Arcuospathidium namibiense tristicha	ter	1				392	1			
Arcuospathidium novaki	ter	1				392	1			
Arcuospathidium pachyoplites	ter	1				–				
"Arcuospathidium pelobium"	lim	1				–				
Arcuospathidium vermiforme	ter		2			399		2		
Arcuospathidium vlassaki	ter	1				400	1			
"Armatospathula costaricana"	ter	1				–				
"Armatospathula periarmata"	ter	1				–				
"Armatospathula plurinucleata"	ter	1				–				
Ascobius lentus	lim				5	–				
Askenasia acrostomia	lim	1				379	1			
Askenasia chlorelligera	lim		2			383	2			
Askenasia volvox	lim				3	400				2
Aspidisca crenata	mar				1	384				1
Aspidisca turrita	lim				3	399				3
Australocirrus oscitans	ter		2			393		3		
Australocirrus zechmeisterae	ter		2			–				
Australothrix alwinae	ter		2			379		3		
Australothrix australis	ter	1				381	1			
Australothrix steineri	ter	1				397	1			
Avelia multinucleata	mar		2			391		2		
Avestina ludwigi	ter	1				389	1			
Bakuella granulifera	ter	1				387	1			
Bakuella (Bakuella) pampinaria oligocirrata	ter	1				–				
Bakuella (Bakuella) pampinaria pampinaria	ter		2			393		2		
Balanonema sapropelica	lim	1				396	1			
Balantidioides dragescoi	ter		2			384	2			
Bardeliella pulchra	ter		4			395		4		
Belonophrya pelagica	lim				2	394				2
Benthontophrys fluviatilis	lim	1				386	1			
Bicoronella costaricana	ter	1				383	1			
Bilamellophrya australiensis	ter	1				381	1			
Bilamellophrya etoschensis	ter	1				385	1			
Bilamellophrya hawaiiensis	ter	1				387	1			
Birojima muscorum	ter				1	391				1
Blepharisma americanum	lim				5	379				5
Blepharisma bimicronucleatum	ter				2	381				2
Blepharisma hyalinum	ter				2	388				2
Blepharisma parasalinarum	mar	1				393		2		
Blepharisma steini	ter				2	397				2
Blepharisma undulans	ter				2	399				2
Brachyosoma brachypoda mucosa	ter	1				382	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Bresslauides australis	ter	1				381	1			
Bresslauides terricola	ter		2			397	2			
Bryometopus atypicus	lim				2	381				2
Bryometopus hawaiiensis	ter	1				387	1			
Bryometopus pseudochilodon	ter				1	395				1
Bryometopus sphagni	ter				1	396				1
Bursellopsis nigricans mobilis	lim				2	392				2
Bursellopsis pelagica	lim	1				394	1			
Bursostoma bursaria	lim				6	382				6
Cardiostomatella vermiformis	mar				3	–				
Caudiholosticha gracilis	ter	1				387	1			
Caudiholosticha stueberi	ter	1				397	1			
Caudiholosticha sylvatica	ter	1				397	1			
Cephalospathula brasiliensis	ter	1				–				
Chaenea vorax	mar				2	400				2
Chilodonatella minuta	lim				3	390				3
Chilodonella uncinata	lim				1	399				1
Chilodontopsis muscorum	ter				1	391				1
Chilophrya terricola	ter		3			398		3		
Chlamydonella alpestris	lim	1				379	1			
Chlamydonellopsis plurivacuolata	lim	1				394	1			
Ciliatosporidium platyophryae	par		2			400		2		
Ciliofaurea mirabilis	mar				1	–				
Circinella arenicola	ter	1				380	1			
Cladotricha australis	ter	1				381	1			
Clavoplites australiensis	ter	1				381	1			
Clavoplites edaphicus	ter	1				384	1			
Climacostomum virens	lim				2	399				2
Codonella cratera	lim				2	384				2
Codonellopsis glacialis	mar				1	386				1
Coleps amphacanthus	lim				2	379				2
Coleps hirtus	lim				2	388				2
Coleps spetai	lim		2			396		2		
Colpidium colpoda	lim				2	383				2
Colpidium kleini	lim				3	388				3
Colpoda aspera	ter				2	381				2
Colpoda cavicola amicronucleata	ter		3			383	3			
Colpoda cavicola cavicola	ter				2	383				1
Colpoda edaphoni	ter	1				384	1			
Colpoda elliotti	ter				2	385				2
Colpoda fastigata ss?	ter				1	386				1
Colpoda formisanoi	ter	1				386	1			
Colpoda henneguyi	ter				1	387				1
Colpoda inflata	ter				1	388				1
Colpoda magna	lim				1	390				1
Colpoda tripartita	ter				4	399				4
Colpodidium (Pseudocolpodidium) bradburyarum	ter	1				382	1			
Colpodidium (Colpodidium) horribile	ter	1				388	1			
Colpodidium (Colpodidium) microstoma	lim	1				390	1			
Colpodidium (Colpodidium) trichocystiferum	ter	1				398	1			
Condylostoma granulosum	mar				1	387				1
Condylostoma longicaudata	mar		4			389		4		
Condylostomides etoschensis	ter		2			385	2			
Condylostomides terricola	ter	1				398	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Condylostomides trinucleatus	ter	1				399	1			
Coniculostomum monilata	lim				1	–				
Corallocolpoda grelli	ter		2			387	2			
Coriplites terricola	ter		2			–				
Corticocolpoda kaneshiroe	ter		2			388	2			
Cranotheridium foliosum	lim				1	386				1
Cristigera minor	lim				1	390				1
Cryptochilum reniforme	mar		1			395	1			
Cultellothrix coemeterii	ter				3	–				
"*Cultellothrix paucistriata*"	ter	1				–				
"*Cultellothrix tortisticha*"	ter	1				–				
"*Cultellothrix velhoi*"	ter	1				–				
Cymatocylis calyciformis	mar				1	382				1
Cymatocylis convallaria	mar				1	383				2
Cyrtohymena (Cyrtohymenides) australis	ter	1				381	1			
Cyrtohymena (Cyrtohymena) citrina	ter	1				383	1			
Cyrtohymena (Cyrtohymena) inquieta	ter				2	388				2
Cyrtohymena (Cyrtohymena) muscorum	ter				1	391				1
Cyrtohymena (Cyrtohymena) quadrinucleata	ter				2	395				2
Cyrtohymena (Cyrtohymenides) aspoecki	ter	1				–				
Cyrtolophosis acuta	ter				1	379				1
Cyrtolophosis mucicola	ter				2	391				2
Dapedophrya flexilis	ter				3	386				3
Declivistoma enchelyodontides	ter	1				–				
Deviata abbrevescens	lim	1				379	1			
Deviata bacilliformis	ter				6	381				6
Dexiostoma campylum	lim				3	382				3
Dexiotricha tranquilla	lim				3	398				3
Diaxonella trimarginata ss?	lim				1	–				
Didinium gargantua	mar				1	386				1
Didinium nasutum	lim				1	392				1
Dileptus alpinus	ter				2	379				2
Dileptus anguillula	ter				5	379				5
Dileptus anser	lim				2	380				2
Dileptus armatus	ter	1				380	1			
Dileptus breviproboscis ss?	ter	1				382	1			
Dileptus conspicuus	ter				2	383				2
Dileptus costaricanus	ter	1				384	1			
Dileptus mucronatus	lim				1	391				1
Dileptus polyvacuolatus	ter	1				394	1			
Dileptus similis	ter	1				396	1			
Dileptus terrenus	ter				1	397				
Dimacrocaryon amphileptoides	ter				3	379				3
Dioplitophrya otti	ter	1				393	1			
Diplites arenicola	ter	1				380	1			
Diplites telmatobius	lim	1				397	1			
Disematostoma gyrans	lim	1				–				
Dragescozoon terricola	ter	1				398	1			
Drepanomonas exigua bidentata	ter		2			385	2			
Drepanomonas exigua exigua	ter				4	385				4
Drepanomonas pauciciliata	ter	1				393	1			
Drepanomonas revoluta	ter				1	395				2
Drepanomonas sphagni	ter				3	396				3
Dysteria calkinsi	mar				1	–				

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Echinamoeba thermarum	mar		2			400	1			
"*Edaphospathula brachycaryon*"	ter	1				–				
"*Edaphospathula gracilis*"	ter	1				–				
"*Edaphospathula inermis*"	lim	1				–				
"*Edaphospathula paradoxa*"	ter	1				–				
Enchelaria multinucleata	ter	1				391	1			
Enchelydium blattereri	ter	1				382	1			
Enchelydium piliforme	lim				2	394				2
Enchelydium terrenum	ter	1				397	1			
Enchelyodon anulatus	lim		2			380		2		
Enchelyodon armatides	ter	1				380	1			
Enchelyodon lagenula	ter				1	389				1
Enchelyodon longinucleatus	ter		2			389	2			
Enchelyodon megastoma	ter		2			390	2			
Enchelyodon minutus	lim	1				390	1			
Enchelyodon nodosus	ter		2			392	2			
Enchelyodon terrenus	ter		2			397	2			
Enchelyodon tratzi	ter	1				398	1			
Enchelyodon vermiformis	lim	1				399	1			
Enchelyomorpha vermicularis	lim				2	399				2
Enchelyotricha binucleata	ter	1				381	1			
Enchelyotricha jesnerae	ter	1				388	1			
Enchelys gasterosteus	lim				1	386				3
Enchelys longitricha	ter	1				389	1			
Enchelys multinucleata	ter				1	391				1
Enchelys polynucleata	ter	1				394	1			
Enchelys terricola	ter	1				398	1			
Enchelys vermiformis	ter		2			399	2			
Engelmanniella mobilis	ter				2	391				2
Epicarchesium granulatum	lim				4	387				4
Epispathidium amphoriforme	ter				2	379				2
Epispathidium ascendens	ter				1	380				1
Epispathidium papilliferum	ter				1	393				1
Epispathidium polynucleatum	ter	1				394	1			
Epispathidium regium	ter	1				395	1			
Epispathidium terricola	ter	1				398	1			
Epistylis procumbens	lim				4	394				4
Epitholiolus attenuatus	lim				1	381				1
Epitholiolus chilensis	ter				2	383				2
Erimophrya arenicola	ter	1				380	1			
Erimophrya glatzeli	ter	1				387	1			
Erimophrya quadrinucleata	ter	1				–				
Erimophrya sylvatica	ter	1				–				
Erniella filiformis	ter	1				386	1			
Eschaneustyla brachytona	ter				2	382	1			
Eschaneustyla lugeri	ter	1				389	1			
Etoschophrya oscillatoriophaga	ter	1				393	1			
Etoschothrix terricola	ter	1				398	1			
Euplotes acanthodus	mar	1				379	1			
Euplotes aediculatus	lim				1	379				1
Euplotes balteatus	mar				1	–				
Euplotoides amieti	lim		4			379		2		
Euplotoides plumipes	ter				2	–				
Euplotopsis elegans	ter				2	–				

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Euplotopsis incisa	ter		2			388	2			
Euplotopsis labiata	ter				2	389				2
Euplotopsis muscorum	ter				1	–				
Exocolpoda augustini	ter		2			381	2			
Flamella aegyptia	par	1				400	1			
Fragmocirrus espeletiae	ter	1				385	1			
Frontonia angusta angusta	lim				3	380				3
Frontonia angusta obovata	ter	1				380	1			
Frontonia depressa	ter				1	384				1
Frontonia frigida	mar		1			386	1			
Frontonia minuta	lim		2			390	1			
Frontonia roqueae	lim		1			–				
Frontonia salmastra	mar	1				396	1			
Frontonia tanganyikae	mar	1				397	1			
Frontonia terricola	ter	1				398	1			
Fungiphrya strobili	ter		2			397	2			
Furgasonia blochmanni	lim				2	382				2
Furgasonia trichocystis ss?	lim				2	398				2
Fuscheria marina	mar		1			390	1			
Fuscheria nodosa	lim				2	392				2
Fuscheria terricola	ter	1				398	1			
Gastronauta aloisi	lim	1				379	1			
Gastronauta derouxi	ter	1				384	1			
Gastronauta membranaceus	lim		2			395		2		
Gastronauta runcina	lim		2			395		2		
Gastrostyla (Gastrostyla) dorsicirrata	ter	1				384	1			
Gastrostyla minima ss?	lim		8			390				8
Gastrostyla (Spetastyla) mystacea mystacea	lim				5	392				5
Geleia decolor	mar				2	384				2
Geleia major	mar				5	390				5
Geleia simplex	mar				2	396				2
Gellertia heterotricha	mar				4	387				4
Gigantothrix herzogi	ter	1				387	1			
Gonostomum affine	ter				1	379				1
Gonostomum algicola ss?	ter				6	379				6
Gonostomum kuehnelti	ter	1				389	1			
Gonostomum namibiense	ter	1				392	1			
Gonostomum strenuum	ter				4	397				4
Grossglockneria acuta	ter		2			379	2			
Grossglockneria ovata	ter		2			393	2			
Gruberia beninensis	mar		3			381	1			
Gruberia uninucleata	mar				2	–				
Gymnozoum sympagicum	mar		1			397	1			
Hackenbergia langae	lim		3			389	1			
Halteria bifurcata	lim				2	381				2
Hausmanniella discoidea	ter				3	384				3
Hausmanniella patella	ter				2	393				2
Hemiamphisiella granulifera	ter	1				–				
Hemiamphisiella quadrinucleata	ter		2			395		2		
Hemiamphisiella wilberti	ter	1				400	1			
Hemimastix amphikineta	ter	1				400	1			
Hemisincirra gellerti gellerti	ter	1				386	1			
Hemisincirra gellerti verrucosa	ter	1				386	1			
Hemisincirra namibiensis	ter	1				392	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Hemisincirra rariseta	ter	1				395	1			
Hemisincirra wenzeli	ter	1				400	1			
Hemiurosoma goertzi	ter	1				387	1			
Hemiurosoma polynucleata	ter		2			394		2		
Hemiurosoma similis	ter	1				396	1			
Hemiurosoma terricola	ter	1				398	1			
Heteropolaria colisarum	par				3	383				3
Heteropolaria lwoffi	par				2	389				2
Heterostentor coeruleus	mar	1				383	1			
Histriculus histrio	lim				4	388				4
Holophrya gracilis	lim				3	387				3
Holophrya oblonga	mar				5	–				
Holophrya ovum	lim				3	393				3
Holophrya salinarum	ter	1				395	1			
Holophrya seyrli	lim	1				396	1			
Holophrya spirogyrophaga	lim	1				397	1			
Holosticha diademata	mar				1	–				
Holosticha foissneri	mar		1			386	1			
Holosticha multistilata ss?	ter				1	391				1
Holosticha similis	mar				1	396				1
Holosticha spindleri	mar		1			397	1			
Holosticha tetracirrata	ter				1	398				1
Holostichides chardezi	ter	1				383	1			
Holostichides dumonti	ter	1				384	1			
Homalogastra setosa	ter				1	396				1
Homalozoon vermiculare	lim				4	399				4
Idiocolpoda pelobia	lim	1				394	1			
Ilsiella elegans	ter		2			385	2			
Ilsiella venusta	ter		2			399	2			
Kahliella microstoma	lim	1				391	1			
Kahliella quadrinucleata	ter				2	–				
Kahliella simplex	ter				4	396				4
Kalometopia eurystoma ss?	ter				6	385				6
Kentrophyllum antarcticum	mar		1			380	1			
Keronopsis dieckmanni	ter		3			384		3		
Keronopsis muscicola	ter				2	391				2
Keronopsis tasmaniensis	ter	1				397	1			
Keronopsis wetzeli	ter				2	400				2
Kovalevaia sulcata	mar				2	–				
Krassniggia auxiliaris	ter		3			381		3		
Kuehneltiella namibiensis	ter	1				392	1			
Lacrymaria granulifera	lim	1				387	1			
Lacrymaria lagenula	mar				1	389				1
Lacrymaria olor	lim				2	393				2
Lacrymaria robusta	lim				2	395				2
Lagynophrya trichocystis	ter		1			399	1			
Lamtostyla decorata	ter	1				384	1			
Lamtostyla granulifera	ter	1				387	1			
Lamtostyla halophila	ter	1				387	1			
Lamtostyla hyalina	ter	1				388	1			
Lamtostyla islandica	ter	1				388	1			
Lamtostyla kirkeniensis	ter	1				388	1			
Lamtostyla perisincirra	ter				2	394				2
Laurentiella bergeri	lim		2			–				

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Leegaardiella elbraechteri	mar		1			384	1			
Leptopharynx costatus	lim				1	384				1
Limnostrombidium pelagicum	lim	1				394	1			1
Limnostrombidium viride	lim				2	399				2
Litonotus antarcticus	mar	1				380	1			
Litonotus emmerichi	mar		1			385	1			
Litonotus kopimorphus	mar		1			389	1			
Litonotus lamella	lim				2	389				2
Litonotus muscorum	ter				2	391				2
Longispatha elegans	ter	1				–				
Loxocephalus foissneri	lim		3			386	1			
Loxodes magnus	lim				2	390				2
Loxodes rex	lim		5			–				
Loxodes striatus	lim				1	397				1
Loxophyllum rostratum	mar				1	395				1
Maristentor dinoferus	mar		2			384	2			
Marituja pelagica	lim				2	394				2
Maryna antarctica	ter		2			380	2			
Maryna namibiensis costaricensis	mar		2			392	2			
Maryna namibiensis namibiensis	mar	1				392	1			
Maryna umbrellata	lim				5	399				5
Membranicola tamari	lim	1				397	1			
Meseres corlissi	lim		2			383	2			
Metacineta namibiensis	ter	1				392	1			
Metacystis striata	mar				2	397				2
Metaurostylopsis rubra	mar	1				395	1			
Metopus contortus	mar				2	383				2
Metopus gibbus	ter				1	386				1
Metopus hasei	ter				1	387				1
Metopus inversus	ter				6	388				6
Metopus ovalis	ter				3	393				3
Metopus ovatus ss?	mar		4			–				
Metopus palaeformis	ter				3	393				3
Microdiaphanosoma arcuatum	ter				2	380				2
Microthorax pusillus	lim				4	395				4
Monilicaryon monilatus	lim				4	391				4
Monocercomonoides hausmanni	par		2			–				
Monodinium balbianii balbianii	lim				1	381				1
Monodinium balbianii breviproboscis	lim	1				381	1			
Monodinium chlorelligerum	lim	1				383	1			
Myxophthirus anomalocardiae	par	1				380	1			
Nassula dragescoi	ter	1				384	1			
Nassula etoschensis	ter	1				385	1			
Nassula exigua	ter				3	386				3
Nassula granata	ter	1				387	1			
Nassula longinassa	lim				2	389				2
Nassula ornata	lim				2	393				2
Nassula parva	ter				3	393				3
Nassula terricola	ter		2			398	2			
Nassulides labiatus	ter				4	389				4
Nassulides vernalis	lim				2	399				2
Naxella lucida	ter				4	389				4
Naxella rosea	ter				3	395				3
Neobryophyllum lingua multistriatum	lim	1				389	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Neobryophyllum paucistriatum	ter	1				384	1			
Neobryophyllum penardi	ter				4	394				3
Neogeneia hortualis	ter			1		388	1			
Nephridiophaga blaberi	par			2		400	1			
Nivaliella plana	ter	1				394	1			
Notocephalus parvulus	mar				1	393				1
Notohymena antarctica	ter	1				380	1			
Notohymena rubescens	ter	1				395	1			
Nudiamphisiella interrupta	ter	1				388	1			
Obertrumia georgiana	lim				2	386				2
Obertrumia gracilis	lim		3			387		3		
Obertrumia kahli	ter	1				388	1			
Obertrumia xantha	lim	1				–				
Obliquostoma namibiense	ter	1				392	1			
Odontochlamys alpestris alpestris	ter		3			379		3		
Odontochlamys alpestris biciliata	ter	1				379	1			
Odontochlamys gouraudi	ter				3	387				3
Odontochlamys wisconsinensis	ter				1	400				1
Onychodromopsis flexilis ss?	ter				4	386				4
Opercularia arboricola ss?	ter				1	380				1
Ophrydium hyalinum	lim				7	388				7
Opisthonecta minima	lim		5			390		5		
Opisthonecta patula ss?	lim		37			393		37		
Orthoamphisiella breviseries	ter	1				382	1			
Orthoamphisiella grelli	ter	1				387		8		
Orthoamphisiella stramenticola	ter		1			397	1			
Orthokreyella schiffmanni	ter	1				396	1			
Ottowphrya dragescoi	ter	1				384	1			
Ovalorhabdos sapropelica	lim		3			396		3		
Oxytricha africana	ter	1				379	1			
Oxytricha auripunctata	ter	1				381	1			
Oxytricha elegans	ter	1				385	1			
Oxytricha granulifera quadricirrata	ter	1				387	1			
Oxytricha lanceolata	ter				2	389				2
Oxytricha nauplia	ter	1				392	1			
Oxytricha opisthomuscorum	ter				1	393				1
Oxytricha rubripuncta	ter	1				395	1			
Papillorhabdos carchesii	lim	1				382	1			
Papillorhabdos multinucleata	lim	1				391	1			
Parabryophrya etoschensis	ter	1				385	1			
Paraclathrostoma gigas	mar		4			386		4		
Paracolpidium truncatum	lim				3	399				3
Paracondylostoma clavistoma oligostriatum	ter	1				383	1			
Paraenchelys brachyarmata	ter	1				382	1			
Paraenchelys brachyoplites	ter	1				382	1			
Paraenchelys pulchra	ter	1				395	1			
Paraenchelys terricola	ter	1				398	1			
Paraenchelys wenzeli	ter		3			400		3		
Parafurgasonia protectissima	lim				4	395				4
Parafurgasonia sorex	ter				2	396				2
Parafurgasonia terricola	ter	1				398	1			
Paragastrostyla terricola	ter	1				398	1			
Paragonostomum binucleatum	ter	1				382	1			
Paragonostomum caudatum	ter	1				383	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Paragonostomum multinucleatum	ter	1				391	1			
Paragonostomum rarisetum	ter	1				395	1			
Paragonostomum simplex	ter	1				–				
Paraholosticha sterkii	mar				1	397				3
Parakahliella binucleata	ter		2			382	2			
Parakahliella halophila	ter	1				387	1			
Parakahliella macrostoma	ter	1				390	1			
Parakahliella namibicola	ter	1				392	1			
Paramecium africanum	lim		2			–				
Paramphisiella acuta	ter	1				379	1			
Paramphisiella caudata	ter				1	383				7
Paraurostyla weissei	lim				2	400				2
Paraurotricha discolor	ter				1	384				1
Parduczia arcachonensis	lim				4	380				4
Parduczia filiformis	mar				3	386				3
Parduczia martinicensis	mar				5	–				
Parduczia orbis	mar				1	393				1
Parentocirrus hortualis	lim		3			388			3	
Pattersoniella vitiphila	ter	1				399	1			
Pedohymena australiensis	ter		3			381	3			
Pelagolacrymaria moserae	lim	1				391	1			
Pelagostrombidium fallax	lim				3	386				3
Pelagostrombidium mirabile	lim				2	391				2
Pelagothrix chlorelligera	lim	1				383	1			
Pelagothrix plancticola	lim		5			394		5		
Pelagovasicola cinctum	lim				2	383				2
Pentahymena corticicola	ter	1				383	1			
Periholosticha paucicirrata	ter	1				–				
Periholosticha sylvatica	ter	1				–				
Perisincirra filiformis	ter	1				–				
Perisincirra longicirrata	ter	1				389	1			
Perisincirra paucicirrata	lim	1				393	1			
Perispira pyriformis	lim		2			395		2		
Phialina jankowskii	lim		2			388	2			
Phialina minima	ter				3	390				3
Phialina terricola	ter	1				398	1			
Phialinides armatus	ter	1				380	1			
Phialinides australis	ter	1				381	1			
Phialinides muscicola	ter				4	–				
Philasterides dicentrarchi ss?	lim		1			–				
Placojoenia sinaica	par		2			400	1			
Plagiocampa bitricha	ter	1				382	2			
Plagiocampa namibiensis	ter	1				392	1			
Plagiocampa pentadactyla	ter	1				394	1			
Plagiocampa rouxi	ter				1	395				1
Plagiocampides halophilus	ter	1				387	1			
Planicoleps psammophilus	mar		3			–				
Platynematum sociale	lim				2	396				2
Platyophrya binucleata	ter	1				382	1			
Platyophrya dubia	lim		2			384				4
Platyophrya paoletti	ter		2			393	2			
Platyophrya similis	ter		3			396		3		
Platyophrya sphagni	lim				6	396				6
Platyophrya spumacola hexasticha	ter	1				397	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Platyophrya spumacola spumacola	ter				1	397				1
Platyophrya terricola	ter	1				398	1			
Platyophryides latus	ter				4	389				4
Plesiocaryon terricola	ter		2			398	2			
Pleuronema salmastra	mar	1				396	1			
Pleuroplites australis	ter	1				381	1			
Pleuroplitoides smithi	ter		3			396	2			
Pleurotricha multinucleata	ter		1			–				
Pleurotricha tchadensis ss?	lim	1				–				
Podophrya bivacuolata	ter	1				–				
Podophrya halophila	ter				1	387				1
Podophrya tristriata	ter	1				399	1			
Prorodon arenicola	mar				2	–				
Prorodon armatides	lim		3			380		3		
Prorodon ovalis	lim		3			–				
Protocyclidium muscicola	lim				2	391				1
Protocyclidium terricola	ter				7	398				7
"*Protospathidium arenicola*"	ter	1				–				
Protospathidium fraterculum fraterculum	ter	1				–				
Protospathidium muscicola	ter		1			–				
Protospathidium namibicola	ter	1				392	1			
Protospathidium serpens	ter				3	–				
Protospathidium terricola	ter	1				398	1			
"*Protospathidium vermiculus*"	par				4	–				
Pseudawerintzewia orbistoma	ter	1				400	1			
Pseudoamphileptus macrostoma	par				1	390				1
Pseudocarchesium claudicans	ter				4	383				4
Pseudochilodonopsis algivora	lim				1	379				1
Pseudochilodonopsis caudata	lim				1	–				
Pseudochilodonopsis fluviatilis	lim	1				386	1			
Pseudochilodonopsis mutabilis	ter	1				391	1			
Pseudochilodonopsis polyvacuolata	lim		2			394	2			
Pseudocohnilembus binucleatus	ter	1				382	1			
Pseudocohnilembus persalinus hexakineta	ter	1				394	1			
Pseudocohnilembus putrinus	ter				2	395				2
Pseudocyrtolophosis alpestris	ter	1				379	1			
Pseudohaplocaulus infravacuolatus	lim		2			388	2			
Pseudoholophrya minuta	lim	1				390	1			
Pseudoholophrya terricola	ter	1				398	1			
Pseudokeronopsis carnea	mar				2	382				2
Pseudokeronopsis flava	mar				2	386				2
Pseudokeronopsis rubra	mar				2	395				2
Pseudokeronopsis trisenestra	lim		2			399	1			
Pseudokreyella etoschensis	ter	1				385	1			
Pseudomonilicaryon angustistoma	ter	1				380	1			
Pseudomonilicaryon gracile	ter				2	387				3
Pseudomonilicaryon japonicum	ter	1				388	1			
Pseudomonilicaryon massutii	ter				5	390				5
Pseudoplatyophrya nana	ter				3	392				2
Pseudoplatyophrya saltans	ter		2			396	2			
Pseudouroleptus buitkampi	ter	1				382	1			
Pseudouroleptus caudatus namibiensis	ter	1				383	1			
Pseudouroleptus procerus	ter	1				394	1			
Pseudourostyla cristata	lim				1	–				

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Pseudourostyla franzi	ter	1				386	1			
Pseudourostyla levis	ter				2	–				
Pseudovorticella elongata	lim				4	385				4
Pseudovorticella margaritata chlorelligera ss?	lim				4	390				4
Pseudovorticella sphagni	ter		14			396		13		
Remanella faurei	mar				1	–				
Remanella multinucleata	mar				2	–				
Remanella rugosa	mar				1	–				
Rhabdoaskenasia minima	lim	1				390	1			
Rigidocortex octonucleatus	ter	1				392	1			
Rigidothrix goiseri	ter	1				–				
Rimostrombidium brachykinetum	lim	1				–				
Rimostrombidium glacicolum	mar		1			386	1			
Rimostrombidium humile	ter				2	388				2
Rostrophrya namibiensis maldivensis	ter	1				392	1			
Rostrophryides africana africana	ter	1				379	1			
Rostrophryides africana etoschensis	ter	1				379	1			
Rostrophryides australis	ter	1				381	1			
Rubrioxytricha haematoplasma	lim	1				387	1			
Sagittaria hyalina	ter				2	388				2
Sathrophilus arenicolus	mar	1				380	1			
Sathrophilus hovassei	lim				2	388				2
Sathrophilus muscorum	ter				1	391				1
Saudithrix terricola	ter	1				–				
Schizocalyptra magna	ter		2			390		2		
Semiplatyophrya acrostoma	ter	1				379	1			
Semiplatyophrya foissneri	ter		2			386		2		
Semispathidium armatum	ter	1				380	1			
Semispathidium enchelyodontides	ter	1				385	1			
Semispathidium lagyniforme	ter				1	389				1
Sikorops espeletiae	ter	1				385	1			
Sikorops minor	ter	1				390	1			
Sikorops namibiensis	ter	1				392	1			
Sikorops woronowiczae	ter	1				400	1			
Siroloxophyllum utricularium	lim				2	399	1			
Sorogena stoianovitchae	ter				6	397				6
Spathidium aciculare	ter	1				379	1			
Spathidium anguilla	ter				1	379				1
Spathidium claviforme	ter				3	383				3
Spathidium contractile	ter	1				383	1			
Spathidium deforme	lim				2	384				2
Spathidium etoschense	ter	1				385	1			
Spathidium lanceoplites	ter	1				389	1			
Spathidium namibicola	ter	1				392	1			
Spathidium procerum	ter				1	394				1
Spathidium seppelti etoschense	ter	1				396	1			
Spathidium seppelti seppelti	ter		1			396	1			
Spathidium spathula	ter				2	396				3
Spathidium turgitorum	ter	1				399	1			
Spetazoon australiense	ter	1				381	1			
Sphaerophrya terricola	ter	1				398	1			
Sphenostomella vernalis	mar	1				399	1			
Spiromonas gonderi	ter	1				400	1			
Spironema terricola	ter	1				400	1			

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Spirostomum minus minus	lim				3	390				3
Spirostomum minus viride	lim	1				390	1			
Spirostomum teres	lim				2	397				2
Spirostrombidium pseudocinctum	mar				1	395				1
Spirotrichonympha minor	par	1				400	1			
Stammeridium kahli	ter				1	388				1
Steinia sphagnicola	lim	1				397	1			
Steinia tetracirrata	ter				1	398				1
Stentor fuliginosus	lim				3	386				3
Stentor multimicronucleatus	mar		3			391	1			
Sterkiella cavicola	ter				4	383				4
Sterkiella histriomuscorum	lim				2	391				1
Sterkiella nova	lim		8			392	1			
Sterkiella thompsoni	ter	1				398	1			
Stokesia vernalis	lim				2	399				2
Strobilidium caudatum	lim				2	383				2
Strombidium antarcticum	mar				1	380				1
Strombidium crassulum	mar				1	384				1
Strombidium emergens	mar				1	385				1
Strombidium glaciale	mar	1				386	1			
Strombidium kryalis	mar	1				389	1			
Strombidium rehwaldi	lim		2			395	2			
Strongylidium muscorum ss?	ter		1			391				1
Stylonychia ammermanni	lim	1				379	1			
Stylonychia harbinensis	lim	1				–				
Stylonychia vorax ss?	ter				2	400				2
Styxophrya quadricornuta	lim	1				395	1			
Supraspathidium armatum	ter	1				380	1			
Supraspathidium etoschense	ter	1				385	1			
Supraspathidium multistriatum	lim		2			391		2		
Swedmarkia arenicola	mar		1			380	1			
Tachysoma granuliferum	ter	1				387	1			
Tachysoma humicola humicola	ter				1	388				1
Tachysoma humicola longisetum	ter		2			388	1			
Tachysoma pellionellum	lim				1	394				1
Telotrochidium cylindricum	lim		2			384	1			
Telotrochidium elongatum	lim		58			385		58		
Telotrochidium matiense	lim		2			–				
Terricirra livida	ter	1				389	1			
Tetmemena pustulata	lim				3	395				1
Tetrahymena edaphoni	ter	1				384	1			
Thigmogaster oppositevacuolatus	lim		2			393	2			
Thigmogaster potamophilus	lim	1				394	1			
Thigmokeronopsis antarctica	mar	1				380	1			
Thigmokeronopsis crystallis	mar	1				384	1			
Thylakidium pituitosum	lim		2			394	2			
Tintinnidium pusillum	lim				2	395				2
Tintinnidium (Semitintinnidium) semiciliatum	lim				2	396				2
Tintinnopsis cylindrata	lim				1	384				2
Tontonia antarctica	mar		1			380	1			
Trachelius ovum	lim				4	393				2
Trachelocerca bodiani	mar				2	382		2		
Trachelocerca ditis	mar				2	–				
Trachelocerca incaudata	mar				2	–				

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Trachelocerca sagitta	mar				2	395				2
Trachelocerca stephani	mar				2	397		2		
Trachelolophos binucleatus	mar		5			382		5		
Trachelolophos filum	mar				1	–				
Trachelolophos gigas	mar	1				386	1			
Trachelolophos schulzei	mar				2	396				2
Trachelolophos setensis	mar		2			396	1			
Trachelophyllum africanum	ter	1				379	1			
Trachelophyllum apiculatum	ter				2	380				2
Trachelophyllum costaricanum	ter	1				384	1			
Trachelophyllum pannonicum	ter	1				393	1			
Tracheloraphis exilis	mar	1				386	1			
Tracheloraphis filiformis	mar	1				386	1			
Tracheloraphis flexuosa	mar				2	–				
Tracheloraphis grisea	mar				2	–				
Tracheloraphis hamata	mar				2	–				
Tracheloraphis longicollis	mar				2	389				2
Tracheloraphis phoenicopterus	mar				2	394				2
Tracheloraphis serrata	mar				2	396				2
Trichocovina hrdyi	par	1				–				
Tricoronella pulchra	ter	1				395	1			
Trihymena terricola	ter		3			398	3			
Trithigmostoma srameki	lim				2	397				2
Trithigmostoma steini	lim				4	397				4
Trochiliopsis australis	lim		2			381	2			
Urliella terricola	ter	1				398	1			
Uroleptopsis (Uroleptopsis) citrina	ter				6	–				
Uroleptus caudatus	lim				3	–				
Uroleptus musculus	lim				1	391				2
Uroleptus paranotabilis	ter	1				393	1			
Uronema paramarinum	mar		1			393	1			
Uronema parduczi	lim		3			393		39		
Uronychia transfuga	mar				1	398				1
Urosoma ambigua ss?	mar	1				–				
Urosoma giganteum	lim				5	386				5
Urosoma karinae	ter	1				388	1			
Urosoma macrostyla	ter				1	390				1
Urosomoida antarctica	ter	1				380	1			
Urosomoida deserticola	ter	1				384	1			
Urosomoida dorsiincisura	ter	1				384	1			
Urosomoida granulifera	ter	1				387	1			
Urosomoida monostyla	ter	1				391	1			
Urosomoida namibiensis	ter	1				392	1			
Urosomoida reticulata	ter	1				395	1			
Urotricha castalia	lim				8	382				8
Urotricha furcata	lim				2	386				2
Urotricha matthesi matthesi	lim	1				390	1			
Urotricha matthesi tristicha	lim		4			390	1			
Urotricha pelagica	lim				8	394				8
Urotricha psenneri	lim	1				–				
Urotricha pseudofurcata	lim		2			395		2		
Urotricha ristoi	lim		2			395		2		
Urotricha simonsbergeri	lim	1				396	2			
Urotricha synuraphaga	lim				2	397				2

Tab. 5: continued

Species	H	HP	SP	HA	NP	ref.	HT	ST	HA	NT
Urotricha venatrix	lim				4	399				4
Vermioxytricha arenicola	ter	1				380	1			
Vorticella astyliformis	ter	1				381	1			
Vorticella chlorellata	lim				4	383				4
Vorticella chlorostigma	lim				4	383				4
Vorticella platysoma	lim				3	394				3
Vorticella sepulcreti	lim		5			396		5		
Vorticella similis	ter				1	396				1
Vorticella vernalis	lim				3	399				3
Wallackia elegans	ter	1				385	1			
Wolfkosia loeffleri	mar		2			389	2			
Woodruffia rostrata	ter				2	395				2
Woodruffides metabolicus	ter				3	390				3
Woodruffides terricola	ter				3	398				3
Zoothamnioides femoralis	lim		6			–				
Zosterodasys kryophilus	mar	1				389	1			
Sum of slides		**350**	**405**	**3**	**707**		**421**	**266**	**3**	**567**
Total amount of slides			**1465**					**1284**		
Number of taxa			**768**					**669**		

Table 6: List of 191 "type" species (nucleospecies) of the respective genus or subgenus represented in the Linz collection. Genera in brackets are recently synonymised. The reference refers to the establishment of the genus, for original or subsequent designation see Aescht (2001) and Berger & AL-Rhasheid (this volume).

Genus	**Reference**	**Protonym**
Acropisthium Perty, 1852	Kenntn. klein. Lebensformen: 149	*A. mutabile*
Actinorhabdos Foissner, 1984	Stapfia **12**: 47	*A. trichocystiferus*
Afroamphisiella Foissner, Agatha & Berger, 2002	Denisia **5**: 698	*A. multinucleata*
Afrothrix Foissner, 1999	Biodiversity & Conservation **8**: 376	*A. darbyshirei*
Anatoliocirrus Özbek & Foissner in Foissner, Agatha & Berger, 2002	Denisia **5**: 615	*A. capari*
(Anictostoma Foissner, 1993)	Protozoenfauna **4/1**: 310	*A. grelli*
Apertospathula Foissner, Agatha & Berger, 2002	Denisia **5**: 318	*A. inermis*
Apoamphisiella Foissner, 1997	Biol. Fertil. Soils **25**: 335	*Onychodromopsis tihanyiensis*
Apobryophyllum Foissner, 1998	Europ. J. Protistol. **34**: 220	*A. terricola*
Apocolpodidium (*Apocolpodidium*) Foissner, Agatha & Berger, 2002	Denisia **5**: 492	*A. (A.) etoschense*
Apocolpodidium (*Phagoon*) Foissner, Agatha & Berger, 2002	Denisia **5**: 497	*A. (P.) macrostoma*
Apocyclidium Foissner, Agatha & Berger, 2002	Denisia **5**: 518	*Cyclidium obliquum*
Apoenchelys Foissner, Agatha & Berger, 2002	Denisia **5**: 112	*A. bamforthi*
Apospathidium Foissner, Agatha & Berger, 2002	Denisia **5**: 334	*A. terricola*
Apourosomoida Foissner, Agatha & Berger, 2002	Denisia **5**: 759	*A. halophila*
Apsiktrata Foissner, Berger & Kohmann, 1994	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/94**: 319	*Holophrya gracilis*
Arcuospathidium Foissner, 1984	Stapfia **12**: 74	*Spathidium cultriforme*
"Armatospathula" Foissner & Xu, 2007	Monogr. Biologicae **81**: 308	*A. costaricana*
Ascobius Henneguy, 1884	Archs Zool. exp. gén. **2**: 412	*A. lentus*
Askenasia Blochmann, 1895	Mikr. Thierwelt: 91	*Trichodina volvox*
Australocirrus Blatterer & Foissner, 1988	Stapfia **17**: 65	*A. oscitans*
Australothrix Blatterer & Foissner, 1988	Stapfia **17**: 38	*A. australis*
Bardeliella Foissner, 1984	Stapfia **12**: 104	*B. pulchra*
Belonophrya André, 1914	Revue suisse Zool. **22**: 182	*B. pelagica*
Benthontophrys Foissner & Gschwind, 1998	Ber. naturw.-med. Ver. Salzburg **12**: 35	*B. fluviatilis*
Bicoronella Foissner, 1995	Arch. Protistenk. **145**: 63	*B. costaricana*
Bilamellophrya Foissner, Agatha & Berger, 2002	Denisia **5**: 170	*B. australiensis*
Bresslauides Blatterer & Foissner, 1988	Stapfia **17**: 19	*B. australis*

Tab. 6: continued

Genus	Reference	Protonym
Bryometopus Kahl, 1932	Tierwelt Dtl. **25**: 433	*B. pseudochilodon*
Bursostoma Vörösvary, 1950	Annls biol. Univ. szeged **1**: 366	*B. bursaria*
Cardiostomatella Corliss, 1960	J. Protozool. **7**: 274	*Cardiostoma vermiforme*
Caudiholosticha Berger, 2003	Europ. J. Protistol. **39**: 377	*Holosticha stueberi*
Cephalospatula Foissner, 2003	Acta Protozool. **42**: 128	*C. brasiliensis*
Chaenea Quennerstedt, 1867	Acta Univ. lund. **4**: 15	*C. vorax*
Chilodonatella Dragesco, 1966	Arch. Protistenk. **109**: 191	*C. minuta*
Chilodonella Strand, 1928	Arch. Naturgesch. **92**: 31	*Chilodon uncinatus*
Chlamydonellopsis Blatterer & Foissner, 1990	Arch. Protistenk. **138**: 94	*C. plurivacuolata*
Circinella Foissner, 1994	Europ. J. Protistol. **30**: 156	*C. arenicola*
Clavoplites Foissner, Agatha & Berger, 2002	Denisia **5**: 212	*C. edaphicus*
Climacostomum Stein, 1859	Org. Infusionsthiere: 55	*Spirostomum virens*
Coleps Nitzsch, 1827	Gleditsch Verl., Leipzig **16**: 69	*Cercaria hirta*
Colpidium Stein, 1860 and subgenus *Colpodidium*	Sber. K. böhm. Ges. Wiss. **1860**: 47	*Paramaecia kolpoda*
Colpodidium (*Pseudocolpodidium*) Foissner, Agatha & Berger, 2002	Denisia **5**: 488	*C. (P.) bradburyarum*
Coniculostomum Njine, 1979	Protistologica **15**: 353	*Laurentia monilata*
Coriplites Foissner, 1988	Stapfia **17**: 93	*C. terricola*
Corticocolpoda Foissner, 1993	J. Euk. Microbiol. **40**: 765	*C. kaneshiroae*
"*Cultellothrix*" Foissner, 2003	Acta Protozool. **42**: 48	*C. velhoi*
Cyrtohymena Foissner, 1989 and subgenus *Cyrtohymena*	Sber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., I. Abt. **196**: 238	*Oxytricha* (*Steinia*) *muscorum*
Cyrtohymena (Cyrtohymenides) Foissner, 2004	Denisia **13**: 372	*C. (Cyrtohymenides) aspoecki*
Cyrtolophosis Stokes, 1885	Am. Nat. **19**: 440	*C. mucicola*
Dapedophrya Foissner, 1995	Arch. Protistenk. **145**: 73	*Glaucoma flexilis*
Declivistoma Foissner, Agatha & Berger in Berger & AL-Rhasheid, 2008	this volume	*Obliquostoma enchelyodontides*
Deviata Eigner, 1995	Europ. J. Protistol. **31**: 341	*D. abbrevescens*
Dexiostoma Jankowski, 1967	Zool. Zh. **46**: 18	*Colpidium campylum*
Diaxonella Jankowski, 1979	Trudy zool. Inst. **86**: 83	*D. trimarginata*
Didinium Stein, 1859	Lotos **9**: 5	*Vorticella nasuta*
Dileptus Dujardin, 1841	Histoire naturelle des zoophytes: 404	*Vibrio anser*
Dimacrocaryon Jankowski, 1967	Akad. Sci. Moldav. SSR, Kishinev: 36	*Dileptus amphileptoides*
Dioplitophrya Foissner, Agatha & Berger, 2002	Denisia **5**: 199	*D. otti*
Diplites Foissner, 1998	Quekett J. Microsc. **38**: 207	*D. telmatobius*
Dragescozoon Foissner, Agatha & Berger, 2002	Denisia **5**: 912	*D. terricola*
"*Edaphospathula*" Foissner & Xu, 2007	Monogr. Biologicae **81**: 85§	*E. brachycaryon*
Enchelaria Foissner, Agatha & Berger, 2002	Denisia **5**: 220	*E. multinucleata*
Enchelyomorpha Kahl, 1930	Tierwelt Dtl. **18**: 140	*Enchelys vermicularis*
Enchelyotricha Foissner, 1987	Sber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., I. Abt. **195**: 224	*E. binucleata*
Engelmanniella Foissner, 1982	Arch. Protistenk. **126**: 66	*Uroleptus mobilis*
Epicarchesium Jankowski, 1985	Trudy zool. Inst., Leningr. **129**: 96	*Carchesium granulatum*
Epispathidium Foissner, 1984	Stapfia **12**: 81	*E. regium*
Epitholiolus Foissner, Agatha & Berger, 2002	Denisia **5**: 164	*Lacrimaria chilensis*
Erimophrya Foissner, Agatha & Berger, 2002	Denisia **5**: 791	*E. glatzeli*
Erniella Foissner, 1987	Zool. Beitr. N. F. **31**: 218	*E. filiformis*
Eschaneustyla Stokes, 1886	Proc. Am. phil. Soc. **23**: 28	*E. brachytona*
Etoschophrya Foissner, Agatha & Berger, 2002	Denisia **5**: 986	*E. oscillatoriophaga*
Etoschothrix Foissner, Agatha & Berger, 2002	Denisia **5**: 593	*E. terricola*
Exocolpoda Foissner, Agatha & Berger, 2002	Denisia **5**: 921	*Colpoda augustini*
Fragmocirrus Foissner, 2000	Stud. Neotrop. Fauna & Environm. **35**: 61	*F. espeletiae*
Fungiphrya Foissner, 1999	J. Eukaryot. Microbiol. **46**: 34	*F. strobili*
Fuscheria Foissner, 1983	Annln naturh. Mus. Wien **84B**: 66	*F. nodosa*
Gastrostyla (*Kleinstyla)* Foissner, Agatha & Berger, 2002	Denisia **5**: 742	*Gastrostyla bavariensis*

Tab. 6: continued

Genus	Reference	Protonym
Gastrostyla (*Spetastyla)* Foissner, Agatha & Berger, 2002	Denisia **5**: 723	*Oxytricha mystacea*
Gellertia Dragesco, 1999	Stapfia **66**: 32	*Geleia heterotricha*
Gigantothrix Foissner, 1999	Biodiversity & Conservation **8**: 367	*G. herzogi*
Gonostomum Sterki, 1878	Z. wiss. Zool. **31**: 57	*Oxytricha affinis*
Grossglockneria Foissner, 1980	Zool. Jb. Syst. **107**: 399	*G. acuta*
Gruberia Kahl, 1932	Tierwelt Dtl. **25**: 440	*G. uninucleata*
Hackenbergia Foissner, 1997	Limnologica (Berlin) **27**: 230	*G. langae*
Hausmanniella Foissner, 1984	Stapfia **12**: 101	*Colpoda discoidea*
Hemiurosoma Foissner, Agatha & Berger, 2002	Denisia **5**: 834	*H. terricola*
Heterostentor Song & Wilbert, 2002	Acta Protozool. **41**: 49	*H. coeruleus*
Holophrya Ehrenberg, 1831	Abh. Akad. Wiss. Berlin **1831**: 101	*H. ovum*
Holostichides Foissner, 1987	Zool. Beitr. N. F. **31**: 201	*H. chardezi*
Homalogastra Kahl, 1926	Arch. Protistenk. **55**: 341	*H. setosa*
Homalozoon Stokes, 1890	Proc. Am. phil. Soc. **28**: 79	*Litonotus vermicularis*
Idiocolpoda Foissner, 1993	Acta Protozool. **32**: 175	*I. pelobia*
Ilsiella Foissner, 1987	Zool. Beitr. N. F. **31**: 272	*I. venusta*
Kentrophyllum Petz, Song & Wilbert, 1995	Stapfia **40**: 50	*K. antarcticum*
Kovalevaia Foissner, 1997	Acta Protozool. **36**: 198	*Trachelonema sulcata*
Krassniggia Foissner, 1987	Zool. Beitr. N. F. **31**: 260	*K. auxiliaris*
Lacrymaria Bory, 1824	Encyl. Meth. **138 (2)**: 479	*Vibrio olor*
Leptopharynx Mermod, 1914	Revue suisse Zool. **22**: 39	*L. costatus*
Limnostrombidium Krainer, 1995	Lauterbornia **21**: 54	*Strombidium viride*
Longispatha Foissner, Xu & Kreutz, 2005	J. Eukaryot. Microsc. **52**: 362§	*L. elegans*
Maristentor Lobban, Schefter, Simpson, Pochon, Pawlo, 2002	Marine Biology (Berlin) **140**: 417	*M. dinoferus*
Marituja Gajewskaja, 1928	Dokl. Akad. Nauk SSSR [= C. R. Acad. Sci. U.R.S.S.] **20**: 476	*M. pelagica*
Membranicola Foissner, Berger & Schaumburg, 1999	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 626	*M. tamari*
Microdiaphanosoma Wenzel, 1953	Arch. Protistenk. **99**: 97	*Diaphanosoma arcuata*
Microthorax Engelmann, 1862	Z. wiss. Zool. **11**: 381	*M. pusillus*
Monilicaryon Jankowski, 1967	Akad. Sci. Moldav. SSR, Kishinev: 36	*Dileptus monilatus*
Myxophthirus Silva Neto, 1992	Europ. J. Protistol. **28**: 421	*M. anomalocardiae*
Neogeneia Eigner, 1995	Europ. J. Protistol. **31**: 341	*N. hortualis*
Nivaliella Foissner, 1980	Zool. Jb. Syst. **107**: 393	*N. plana*
Notocephalus Petz, Song & Wilbert, 1995	Stapfia **40**: 169	*Tachysoma parvulum*
Notohymena Blatterer & Foissner, 1988	Stapfia **17**: 70	*N. rubescens*
Nudiamphisiella Foissner, Agatha & Berger, 2002	Denisia **5**: 693	*N. interrupta*
Obertrumia Foissner & Adam 1981	Zool. Anz. **207**: 308	*Nassula georgiana*
Odontochlamys Certes, 1891	Mém. Soc. zool. Fr. **4**: 540	*O. gouraudi*
Onychodromopsis Stokes, 1887	Ann. Mag. nat. Hist., Serie 5, **20**: 107	*O. flexilis*
Orthoamphisiella Eigner & Foissner, 1991	Acta Protozool. **30**: 129	*O. stramenticola*
Orthokreyella Foissner, 1984	Stapfia **12**: 98	*O. schiffmanni*
Ottowphrya Foissner, Agatha & Berger, 2002	Denisia **5**: 967	*Platyophryides dragescoi*
Ovalorhabdos Foissner, 1984	Stapfia **12**: 31	*Ovalorhabdos sapropelicus*
Papillorhabdos Foissner, 1984	Stapfia **12**: 40	*P. multinucleatus*
Paracolpidium Ganner & Foissner, 1989	Hydrobiologia **182**: 205	*Colpidium truncatum*
Parafurgasonia Foissner & Adam, 1981	Zool. Anz. **207**: 304	*Nassula sorex*
Paragonostomum Foissner, Agatha & Berger, 2002	Denisia **5**: 819	*P. caudatum*
Parakahliella Berger, Foissner & Adam, 1985	Protistologica **21**: 309	*Paraurostyla macrostoma*
Paramphisiella Foissner, 1988	Stapfia **17**: 121	*Amphisiella acuta*
Paraurostyla Borror, 1972	J. Protozool. **19**: 9	*Urostyla weissei*
Paraurotricha Foissner, 1983	Annln naturh. Mus. Wien **84B**: 60	*Urotricha discolor*
Parduczia Dragesco, 1999	Stapfia **66**: 54	*Geleia orbis*
Parentocirrus Voss, 1997	Europ. J. Protistol. **33**: 30	*P. hortualis*
Pattersoniella Foissner, 1987	Zool. Beitr. N. F. **31**: 207	*P. vitiphila*

Tab. 6: continued

Genus	Reference	Protonym
Pedohymena Foissner, 1995	Arch. Protistenk. **145**: 58	*P. australiense*
Pelagolacrymaria Foissner, Berger & Schaumburg, 1999	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 265	*P. moserae*
Pelagostrombidium Krainer, 1991	Europ. J. Protistol. **27**: 64	*Strombidium mirabile*
Pelagothrix Foissner, Berger & Schaumburg, 1999	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **3/99**: 395	*P. chlorelligera*
Pentahymena Foissner, 1994	Arch. Protistenk. **144**: 290	*P. corticicola*
Phialinides Foissner, 1988	Stapfia **17**: 97	*P. australis*
Placojoenia Radek & Hausmann, 1994	Europ. J. Protistol. **30**: 26	*P. sinaica*
Plagiocampides Foissner, Agatha & Berger, 2002	Denisia **5**: 547	*P. halophilus*
Planicoleps Dragesco & Dragesco-Kerneis, 1991	Europ. J. Protistol. **26**: 217	*P. psammophilus*
Platynematum Foissner, Berger & Kohmann, 1994	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/94**: 256	*Uronema sociale*
Platyophryides Foissner, 1987	Zool. Beitr. N. F. **31**: 240	*Platyophrya lata*
"*Plesiotricha*" Dragesco, 1970	AnnlsFac. Sci. Univ. féd. Cameroun (Numéro hors-série): 98	*Uroleptopsis multiseta*
Pleuroplites Foissner, 1988	Stapfia **17**: 88	*P. australis*
Pleuroplitoides Foissner, 1996	Acta Protozool. **35**: 103	*P. smithi*
Pseudoamphileptus Foissner, 1983	Zool. Jb. Syst. **110**: 405	*Hemiophrys macrostoma*
Pseudocyrtolophosis Foissner, 1980	Zool. Jb. Syst. **107**: 407	*P. alpestris*
Pseudoholophrya Berger, Foissner & Adam, 1984	Zool. Jb. Syst. **111**: 341	*P. terricola*
Pseudokeronopsis Borror & Wicklow, 1983	Acta Protozool. **22**: 123	*Oxytricha rubra*
Pseudomonilicaryon Foissner, 1987	Limnologica (Berlin) **27**: 196	*Dileptus gracilis*
Pseudoplatyophrya Foissner, 1980	Zool. Jb. Syst. **107**: 395	*Platyophrya nana*
Pseudourostyla Borror, 1972	J. Protozool. **19**: 5, 11	*Urostyla cristata*
Remanella Foissner, 1996	Europ. J. Protistol. **32**: 249	*R. multinucleat*
Rhabdoaskenasia Krainer & Foissner, 1990	J. Protozool. **37**: 426	*R. minima*
Rigidocortex Berger, 1999	Monogr. Biologicae **78**: 717	*Australocirrus octonucleatus*
Rigidothrix Foissner & Stoeck, 2006	Europ. J. Protistol. **42**: 251	*R. goiseri*
Rostrophryides Foissner, 1987	Zool. Beitr. N. F. **31**: 236	*R. africana*
Rubrioxytricha Berger, 1999	Monogr. Biologicae **78**: 479	*Oxytricha haematoplasma*
Saudithrix Berger, Al-Rasheid & Foissner, 2006	J. Eukaryot. Microsc. **53**: 267	*S. terricola*
Schizocalyptra Dragesco, 1968	Protistologica **4**: 85	*S. magna*
Semiplatyophrya Wilbert & Kahan, 1986	Arch. Protistenk. **131**: 130	*S. foissneri*
Semispathidium Foissner, Agatha & Berger, 2002	Denisia **5**: 327	*S. enchelyodontides*
Sikorops Foissner, 1999	Biodiversity & Conservation **8**: 325	*S. woronowiczae*
Siroloxophyllum Foissner & Leipe, 1995	J. Eukaryot. Microbiol. **42**: 477	*Amphileptus utricularіae*
Sorogena Bradbury & Olive, 1980	J. Protozool. **27**: 275	*S. stoianovitchae*
Spetazoon Foissner, 1994	Kataloge des OÖ. Landesmuseums N. F. **71**: 267	*S. australiense*
Sphenostomella Jankowski, 1980	Trudy zool. Inst., Leningr. **94**: 119	*Sathrophilus vernalis*
Stammeridium Wenzel, 1969	Arch. Protistenk. **111**: 275: 275	*Stammeriella kahli*
Sterkiella Foissner, Blatterer, Berger & Kohmann, 1991	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/91**: 311	*Oxytricha cavicola*
Stokesia Wenrich, 1929	Trans. Am. microsc. Soc. **48**: 229	*S. vernalis*
Styxophrya Foissner, Moon van der Staay, van der Staay, Hackstein, Krautgartner & Berger, 2004	Europ. J. Protistol. **40**: 279	*Onychodromus quadricornutus*
Swedmarkia Dragesco, 1954	Bull. Soc. zool. Fr. **79**: 69	*S. arenicola*
Tachysoma Stokes, 1887	Ann. Mag. nat. Hist., Ser. 5 **20**: 108	*Trichoda pellionella*
(Tillina Gruber, 1879*)*	Zool. Anz. **2**: 519	*T. magna*
Tintinnidium (Semitintinnidium) Agatha & Strüder-Kypke, 2007	Europ. J. Protistol. 43: 58	*Tintinnus semiciliatus*
Trachelius Schrank, 1803	Fauna Boica: 55	*Ophryocerca ovum*
Trachelocerca Ehrenberg, 1840	Ber. Verh. K. Preuss. Akad. Wiss. Berl. **1840**: 202	*Vibrio sagitta*
Trachelolophos Foissner & Dragesco, 1996	J. Euk. Microbiol. **43**: 15	*T. gigas*

Genus	Reference	Protonym
Trachelophyllum Claparède & Lachmann, 1859	Mém. Inst. natn. génev. **6**: 306	*Trachelius apiculatus*
Tracheloraphis Dragesco, 1960	Trav. Stn. biol. Roscoff (N. S.) **12**: 120	*Trachelocerca phoenicopterus*
Tricoronella Blatterer & Foissner, 1988	Stapfia **17**: 56	*T. pulchra*
Trihymena Foissner, 1988	Stapfia **17**: 103	*T. terricola*
Urliella Foissner, 1989	Sber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., I. Abt. **196**: 203	*U. terricola*
Uroleptopsis (Uroleptopsis) Berger, 2004	Acta Protozool. **43**: 114	*U. citrina*
Uronychia Stein, 1859	Abh. K. böhm. Ges. Wiss. **10** (year 1857): 62	*Trichoda transfuga*
Vermioxytricha Foissner, Agatha & Berger, 2002	Denisia **5**: 749	*V. arenicola*
Wolfkosia Foissner, Agatha & Berger, 2002	Denisia **5**: 458	*W. loeffleri*
Woodruffia Kahl, 1931	Tierwelt Dtl. **21**: 285	*W. rostrata*
Woodruffides Foissner, 1987	Zool. Beitr. N. F. **31**: 229	*W. terricola*
Zoothamnioides Schödel, 2006	Lauterbornia **56**: 132§	*Z. femoralis*

Table 7: List of 38 "type genera" (nucleogenera) of the respective family represented in the Linz collection.

Family	Reference	Nucleogenus
Acropisthiidae Foissner & Foissner, 1988	Arch. Protistenk. **135**: 228	*Acropisthium*
Apertospathulidae Foissner, Xu & Kreutz, 2005	J. Eukaryot. Microsc. **52**: 317	*Apertospathula*
Apsiktratidae Foissner, Berger & Kohmann, 1994	Informationsberichte Bayer. Landesamtes für Wasserwirtschaft **1/94**: 319	*Apsiktrata*
Arcuospathidiidae Foissner & Xu, 2007	Monogr. Biologicae **81**: 155	*Arcuospathidium*
Bardelielidae Foissner, 1984	Stapfia **12**: 104	*Bardeliella*
Bryometopidae Jankowski, 1980	Dokl. Akad. Nauk SSSR **94**: 120	*Bryometopus*
Chilodonellidae Deroux, 1970	Protistologica **6**: 180	*Chilodonella*
Climacostomidae Repak, 1972	J. Protozool. **19**: 417	*Climacostomum*
Colepidae Ehrenberg, 1838	Infusionsthierchen: 316	*Coleps*
Cyrtolophosididae Stokes, 1888	J. Trenton nat. Hist. Soc. **1**: 192	*Cyrtolophosis*
Didiniidae Poche, 1913	Arch. Protistenk. **30**: 254	*Didinium*
Enchelyomorphidae Augustin & Foissner, 1992	Arch. Protistenk. **141**: 247	*Enchelyomorpha*
Exocolpodidae Foissner, Agatha & Berger, 2002	Denisia **5**: 921	*Exocolpoda*
Fuscheriidae Foissner, Agatha & Berger, 2002	Denisia **5**: 189	*Fuscheria*
Grossglockneriidae Foissner, 1980	Zool. Jb. Syst. **107**: 393	*Grossglockneria*
Hausmanniellidae Foissner, 1987	Zool. Beitr. N. F. **31**: 263	*Hausmanniella*
Holophryidae Perty, 1852	Kenntn. klein. Lebensformen	*Holophrya*
Lacrymariidae Foissner, 1983	Annln naturh. Mus. Wien **84B**: 75	*Lacrymaria*
Maristentoridae Miao, Simpson, Fu & Lobban, 2005	J. Eukaryot. Microbiol. **52**: 15	*Maristentor*
Marituidae Jankowski in Small & Lynn, 1985	Illustr. Guide, Ciliophora: 513	*Marituja*
Microthoracidae Wrzesniowski, 1870	Z. wiss. Zool. **20**: 487	*Microthorax*
Orthoamphisiellidae Eigner, 1997	J. Eukaryot. Microbiol. **44**: 557	*Orthoamphisiella*
Parakahliellidae Eigner, 1997	J. Eukaryot. Microbiol. **44**: 563	*Parakahliella*
Pattersoniellidae Shi, Song & Shi in Song, 1999	Progr. Protozool., Qingdao: 118	*Pattersoniella*
Pelagostrombidiidae Agatha, 2004	Zoology (Jena) **107**: 163	*Pelagostrombidium*
Pleuroplitidae Foissner, 1996	Acta Protozool. **35**: 103	*Pleuroplites*
Pseudoholophryidae Berger, Foissner & Adam, 1984	Zool. Jb. Syst. **111**: 340	*Pseudoholophrya*
Pseudokeronopsidae Borror & Wicklow, 1983	Acta Protozool. **22**: 123	*Pseudokeronopsis*
Pseudourostylidae Jankowski, 1979	Trudy zool. Inst., Leningr. **86**: 74	*Pseudourostyla*
Rigidotrichidae Foissner & Stoeck, 2006	Europ. J. Protistol. **42**: 251	*Rigidothrix*
Sorogenidae Bradbury & Olive, 1980	J. Protozool. **27**: 275	*Sorogena*
Stokesiidae Roque, 1961	Bull. biol. Fr. Belg. **95**: 468	*Stokesia*
Swedmarkiidae Jankowski, 1979	Trudy zool. Inst., Leningr. **86**: 82	*Swedmarkia*
Trachelocercidae Kent, 1881	Manual Infusoria **4**: 514	*Trachelocerca*
Trachelophyllidae Kent, 1882	Manual Infusoria **4**: 502	*Trachelophyllum*
Trihymenidae Foissner, 1988	Stapfia **17**: 102	*Trihymena*
Uronychiidae Jankowski, 1975	Akad. Nauk. SSSR, Zool. Inst. Leningr.: 27	*Uronychia*
Woodruffiidae Gelei, 1954	Acta biol. hung. **5**: 303	*Woodruffia*

Table 8: Families in alphabetic order and enclosed genus or genera represented at Linz.

Acropisthiidae
Acropisthium
Clavoplites
Coriplites
Cranotheridium
Diplites
Perispira
Actinobolinidae
Actinobolina
Belonophrya
Amphileptidae
Amphileptus
Kentrophyllum
Pseudoamphileptus
Amphisiellidae
Afroamphisiella
Amphisiella
Amphisiellides
Hemiamphisiella
Lamtostyla
Nudiamphisiella
Paramphisiella
Apertospathulidae
Apertospathula
Longispatha
Arcuospathidiidae
Arcuospathidium
Armatospathula
Cultellothrix
Aspidiscidae
Aspidisca
Aveliidae
Avelia
Parduczia
Bakuellidae
Australothrix
Bakuella
Balantidiidae
Balantidioides
Bardeliellidae
Bardeliella
Bryometopidae
Bryometopus
Thylakidium
Bryophryidae
Parabryophrya
Bryophyllidae
Neobryophyllum
Bursaridiidae
Paracondylostoma
Cardiastomatellidae
Cardiostomatella
Chilodonellidae
Alinostoma
Chilodonatella
Chilodonella
Odontochlamys
Pseudochilodonopsis
Thigmogaster
Trithigmostoma
Cinetochilidae
Platynematum
Sathrophilus
Sphenostomella
Climacostomidae
Climacostomum
Codonellidae
Codonella
Tintinnopsis
Codonellopsidae
Codonellopsis
Colepidae
Coleps
Planicoleps
Colpodidae
Colpoda
Corallocolpoda
Corticocolpoda
Idiocolpoda
Krassniggia
Kuehneltiella
Colpodidiidae
Apocolpodidium
Colpodidium
Pedohymena
Condylostomatidae
Condylostoma
Condylostomides
Cryptochilidae
Cryptochilum
Cyclidiidae
Apocyclidium
Cristigera
Protocyclidium
Cyrtolophosididae
Cyrtolophosis
Plesiocaryon
Pseudocyrtolophosis
Didiniidae
Didinium
Monodinium
Dysteriidae
Dysteria
Enchelyidae
Apoenchelys
Chilophrya
Declivistoma
Enchelys
Obliquostoma
Papillorhabdos
Enchelyodontidae
Enchelydium
Enchelyomorphidae
Enchelyomorpha
Epistylididae
Epistylis
Heteropolaria
Euplotidae
Euplotes
Euplotoides
Euplotopsis
Exocolpodidae
Exocolpoda
Folliculinidae
Ascobius
Frontoniidae
Disematostoma
Frontonia
Paraclathrostoma
Furgasoniidae
Furgasonia
Parafurgasonia
Urliella
Wolfkosia
Fuscheriidae
Dioplitophrya
Fuscheria
Gastronautidae
Gastronauta
Geleiidae
Geleia
Gellertia
Grossglockneriidae
Fungiphrya
Grossglockneria
Nivaliella
Pseudoplatyophrya
Halteriidae
Halteria
Meseres
Hausmanniellidae
Avestina
Bresslauides
Hausmanniella
Kalometopia
Holophryidae
Bursellopsis
Holophrya
Pelagothrix
Holostichidae
Afrothrix
Anteholosticha
Birojima
Caudiholosticha
Diaxonella
Holosticha
Holostichides
Periholosticha
Homalozoonidae
Homalozoon
Jaroschiidae
Dapedophrya
Pentahymena
Kahliellidae
Deviata
Engelmanniella
Kahliella
Paraholosticha
Parakahliella
Wallackia
Keronidae
Keronopsis
Kreyellidae
Microdiaphanosoma
Orthokreyella
Kryoprorodontidae
Gymnozoum
Lacrymariidae
Lacrymaria
Pelagolacrymaria
Phialina
Phialinides
Lagynophryidae
Lagynophrya
Leegaardiellidae
Leegaardiella
Leptopharynidae
Leptopharynx
Litonotidae
Litonotus
Loxocephalidae
Balanonema
Dexiotricha
Loxocephalus
Loxodidae
Loxodes
Remanella
Loxophyllidae
Loxophyllum
Siroloxophyllum
Lynchellidae
Chlamydonella
Chlamydonellopsis
Maristentoridae
Maristentor
Marituja
Marituja
Marynidae
Ilsiella
Maryna
Mesodiniidae
Askenasia
Pelagovasicola
Rhabdoaskenasia
Metacystidae
Metacystis
Metopidae
Metopus
Microthoracidae
Drepanomonas
Microthorax
Stammeridium
Trochiliopsis
Myriokaryonidae
Cephalospathula
Nassulidae
Nassula
Nassulides
Naxella
Obertrumia
Operculariidae
Opercularia
Ophrydiidae
Ophrydium
Ophryoglenidae
Bursostoma
Opisthonectidae
Opisthonecta
Telotrochidium
Orthoamphisiellidae
Circinella
Cladotricha
Orthoamphisiella
Orthodonellidae
Zosterodasys
Oxytrichidae
Apoamphisiella
Apourosomoida
Australocirrus
Coniculostomum
Cyrtohymena
Gastrostyla
Gonostomum
Hemisincirra
Hemiurosoma
Histriculus
Laurentiella
Notohymena
Onychodromopsis
Onychodromus
Oxytricha
Paragonostomum
Paraurostyla
Parentocirrus
Perisincirra
Pleurotricha
Pseudouroleptus
Rigidocortex
Rubrioxytricha
Steinia
Sterkiella
Stylonychia
Tachysoma
Terricirra
Tetmemena
Urosoma
Urosomoida
Vermioxytricha
Parakahliellidae
Anatoliocirrus
Fragmocirrus
Neogeneia
Parameciidae
Paramecium
Parauronematidae
Miamiensis
Pattersoniellidae
Pattersoniella
Pelagostrombidiidae
Pelagostrombidium
Placidae
Placus
Plagiocampidae
Paraurotricha
Plagiocampa
Plagiocampides
Platyophryidae
Platyophrya
Platyophryides
Pleuronematidae
Pleuronema
Schizocalyptra
Pleuroplitidae
Pleuroplites
Pleuroplitoides
Podophryidae
Podophrya
Sphaerophrya
Prorodontidae
Prorodon
Protospathidiidae
Edaphospathula
Protospathidium
Sikorops
Pseudochlamydonellidae
Hackenbergia
Pseudocohnilembidae
Pseudocohnilembus
Pseudoholophryidae
Ovalorhabdos
Paraenchelys
Pseudoholophrya
Pseudokeronopsidae
Pseudokeronopsis
Thigmokeronopsis
Uroleptopsis
Pseudourostylidae
Pseudourostyla
Ptychocylidae
Cymatocylis
Reticulowoodruffiidae
Semiplatyophrya
Rigidotrichidae
Rigidothrix
Sagittariidae
Sagittaria
Scaphidiodontidae
Chilodontopsis
Sorogenidae
Sorogena
Spathidiidae
Apobryophyllum
Apospathidium
Enchelaria
Epispathidium
Semispathidium
Spathidium
Supraspathidium

Tab. 8: continued

Spirostomidae *Anigsteinia* *Blepharisma* *Gruberia* *Spirostomum* **Stentoridae** *Heterostentor* *Stentor* **Stokesiidae** *Stokesia* **Strobilidiidae** *Rimostrombidium* *Strobilidium* **Strombidiidae** *Limnostrombidium* *Spirostrombidium* *Strombidium* **Swedmarkiidae** *Swedmarkia* **Tectohymenidae** *Pseudokreyella* **Tetrahymenidae** Colpidium *Dexiostoma* *Tetrahymena* **Thigmophryidae** *Myxophthirus*	**Tintinnidae** *Membranicola* *Stenosemella* *Tintinnidium* **Tokophryidae** *Brachyosoma* **Tontoniidae** *Tontonia* **Tracheliidae** *Dileptus* *Dimacrocaryon* *Monilicaryon* *Pseudomonilicaryon* *Trachelius* **Trachelocercidae** *Kovalevaia* *Trachelocerca* *Trachelolophos* *Tracheloraphis* **Trachelophyllidae** *Actinorhabdos* *Bilamellophrya* *Chaenea* *Enchelyodon* *Enchelyotricha* *Epitholiolus* *Spetazoon*	*Trachelophyllum* **Trihymenidae** *Trihymena* **Turaniellidae** *Paracolpidium* **Urnulidae** *Metacineta* **Uronematidae** *Homalogastra* *Uronema* **Uronychiidae** *Diophrys* *Uronychia* **Urostylidae** *Bicoronella* *Eschaneustyla* *Etoschothrix* *Metaurostylopsis* *Notocephalus* *Tricoronella* *Uroleptus* **Urotrichidae** *Urotricha* **Vorticellidae** *Epicarchesium* *Pseudocarchesium* *Pseudohaplocaulus*	*Pseudovorticella* *Vorticella* **Woodruffiidae** *Etoschophrya* *Rostrophrya* *Rostrophryides* *Woodruffia* *Woodruffides* **Zoothamniidae** *Zoothamnioides* **incertae sedis** *Benthontophrys* *Ciliofaurea* *Dragescozoon* *Erniella* *Gigantothrix* *Ottowphrya* *Saudithrix* **Further protists** **Colpodellidae** (apicomplexan) *Spiromonas* **Cyclopyxidae** (testate amoebae) *Pseudawerinzewia*	**Echinamoebidae** (amoebozoan) *Echinamoeba* **Encephalitozoonidae** (microsporidans) *Ciliatosporidium* **Flabellulidae** (lobosean amoebae) *Flamella* **Joeniidae** (hypermastigid flagellates) *Placojoenia* **Nephridiophagidae** (zygomycote fungi) *Nephridiophaga* **Polymastigidae** (polymastigid flagellates) *Monocercomonoides* Trichocovina **Spironemidae** (hemimastigophoran flagellates) *Hemimastix* **Spirotrichonymphidae** (trichomonadid flagellates) *Spirotrichonympha*

Table 9: List of families with the respective number of genera and species represented in the Linz collection.

Family	Genera	Species
Acropisthiidae	6	10
Actinobolinidae	2	3
Amphileptidae	3	3
Amphisiellidae	7	29
Apertospathulidae	2	11
Arcuospathidiidae	3	24
Aspidiscidae	1	2
Aveliidae	2	5
Bakuellidae	2	6
Balantidiidae	1	1
Bardeliellidae	1	1
Bryometopidae	2	5
Bryophryidae	1	1
Bryophyllidae	1	3
Bursaridiidae	1	1
Cardiastomatellidae	1	1
Chilodonellidae	7	17
Cinetochilidae	3	5
Climacostomidae	1	1
Codonellidae	2	2
Codonellopsidae	1	1
Colepidae	2	4
Colpodidae	6	16
Colpodidiidae	3	7
Condylostomatidae	2	5
Cryptochilidae	1	1
Cyclidiidae	3	4
Cyrtolophosididae	3	4
Didiniidae	2	5
Dysteriidae	1	1

Family	Genera	Species
Enchelyidae	6	12
Enchelyodontidae	1	3
Enchelyomorphidae	1	1
Epistylididae	2	3
Euplotidae	3	8
Exocolpodidae	1	1
Folliculinidae	1	1
Frontoniidae	3	11
Furgasoniidae	4	7
Fuscheriidae	2	4
Gastronautidae	1	4
Geleiidae	2	4
Grossglockneriidae	4	6
Halteriidae	2	2
Hausmanniellidae	4	6
Holophryidae	3	10
Holostichidae	8	23
Homalozoonidae	1	1
Jaroschiidae	2	2
Kahliellidae	6	12
Keronidae	1	4
Kreyellidae	2	2
Kryoprorodontidae	1	1
Lacrymariidae	4	13
Lagynophryidae	1	1
Leegaardiellidae	1	1
Leptopharynidae	1	1
Litonotidae	1	5
Loxocephalidae	3	3
Loxodidae	2	6

Family	Genera	Species
Loxophyllidae	2	3
Lynchellidae	2	2
Maristentoridae	1	1
Maritujidae	1	1
Marynidae	2	6
Mesodiniidae	3	5
Metacystidae	1	1
Metopidae	1	7
Microthoracidae	4	8
Myriokaryonidae	1	1
Nassulidae	4	16
Operculariidae	1	1
Ophrydiidae	1	1
Ophryoglenidae	1	1
Opisthonectidae	2	5
Orthoamphisiellidae	3	5
Orthodonellidae	1	1
Oxytrichidae	33	94
Parakahliellidae	3	3
Parameciidae	1	1
Parauronematidae	1	1
Pattersoniellidae	1	1
Pelagostrombidiidae	1	2
Placidae	1	1
Plagiocampidae	3	6
Platyophryidae	2	9
Pleuronematidae	2	2
Pleuroplitidae	2	2
Podophryidae	2	4
Prorodontidae	1	3

Tab. 9: continued

Family	Genera	Species
Protospathidiidae	3	12
Pseudochlamydonellidae	1	1
Pseudocohnilembidae	1	3
Pseudoholophryidae	3	8
Pseudokeronopsidae	3	7
Pseudourostylidae	1	3
Ptychocylidae	1	2
Reticulowoodruffiidae	1	2
Rigidotrichidae	1	1
Sagittariidae	1	1
Scaphidiodontidae	1	1
Sorogenidae	1	1
Spathidiidae	8	33
Spirostomidae	4	12
Stentoridae	2	4
Stokesiidae	1	1
Strobilidiidae	2	5
Strombidiidae	3	9
Swedmarkiidae	1	1
Tectohymenidae	1	1

Family	Genera	Species
Tetrahymenidae	3	4
Thigmophryidae	1	1
Tintinnidae	3	3
Tokophryidae	1	1
Tontoniidae	1	1
Tracheliidae	5	18
Trachelocercidae	4	18
Trachelophyllidae	8	24
Trihymenidae	1	1
Turaniellidae	1	1
Urnulidae	1	1
Uronematidae	2	3
Uronychiidae	2	2
Urostylidae	7	9
Urotrichidae	1	12
Vorticellidae	5	13
Woodruffiidae	5	8
Zoothamniidae	1	1
incertae sedis	7	8
Total	**332**	**768**

Family	Genera	Species
Further protists		
Colpodellidae	1	1
Cyclopyxidae	1	1
Echinamoebidae	1	1
Encephalitozoonidae	1	1
Flabellulidae	1	1
Joeniidae	1	1
Nephridiophagidae	1	1
Polymastigidae	2	2
Spironemidae	1	1
Spirotrichonymphidae	1	1
Total	**11**	**11**

Table 10: Continents and countries represented in the Linz collection including the number of "type" localities (OT).

Continent	Country	OT
Europe		
	Austria	254
	Croatia	1
	Denmark	6
	Finland	1
	France	49
	Germany	49
	Greece	5
	Hungary	1
	Iceland	2
	Italy	2
	Norway	1
	Poland	1
	Portugal	4
	Spain	4
	Turkey	1
Africa		
	Benin	13
	Botswana	4
	Burundi	7
	Cameroun	9
	Egypt	4
	Kenya	35
	Madagascar	2
	Mali	1
	Namibia	108
	Rwanda	7
	South Africa	11
	Tunisia	1
America		
	Brazil	8
	Cap Verde	4

Continent	Country	OT
	Chile	1
	Costa Rica	13
	Cuba	1
	Peru	2
	USA	19
	Venezuela	14
Asia		
	China	3
	India	1
	Israel	10
	Japan	6
	Jordan	2
	Maldives	2
	Saudi Arabia	1
Australia		
	Fiji Islands	3
	Australia	48
	Papua New Guinea	1
	Tasmania	1
Antarctica		49
Total		
Unknown		7
Europe	15	381
Africa	12	202
America	8	62
Asia	7	25
Australia	4	53
Antarctica	1	49
	47	**779**

5 Discussion

5.1 Ambiguities of the ICZN and how many codes are needed?

Protists are neither plants nor animals, because, for instance they are (mostly) single cells without somatic tissue. However, they must be regarded as plants or animals for purposes of their nomenclature. The choice of which code to apply to a protist is unregulated; thus if nomenclatural instability is to be avoided, some changes in current practices are required (CORLISS 1983; TAYLOR et al. 1986; HEYWOOD & ROTHSCHILD 1987, ROTHSCHILD & HEYWOOD 1988; PATTERSON 1986, PATTERSON & LARSEN 1992; HAWKSWORTH et al. 1994; ADL et al. 2005, 2007). ROTHSCHILD & HEYWOOD (1988) favour the adoption of a unified nomenclatural code, i.e. amalgamating existing codes into a single new code for all of life. If this is impossible for the heuristic and political reasons outlined by PATTERSON (1986), they suggest that botanical and zoological nomenclature be retained for the "true" (in an evolutionary sence) plants and animals, and develop a separate, again non-prejudicial ICZN for the lower taxonomic levels of the protists. PATTERSON & LARSEN (1992) proposed to establish a single common committee to consider issues arising with protists and other ambiregnal taxa and identified 13 issues that deserve attention during desirable harmonization of the codes. Most relevant for present concerns is their suggestion that uninterpreted records (photographs, film, video, etc.) may serve to "typify" a taxon, which is opposed here (see chapter 5.1.2).

Protistologists are necessarily a special interest group and our problems should be reflected in future regulations. Thus, the discussion on the particular problems of protistan nomenclature should be intensified. As no solution concerning a unified code is foreseeable (e.g. HAWKSWORTH 1996), I will focus on the ICZN (1999) and its improvement since there should be a single ICZN, not different rules for different situations (cp. DUBOIS & NEMÉSIO 2007). Nonwithstanding, our primary goal should be to accelerate the collection, study, description and storing of as many biological species of our planet as possible before they get extinct. It should be clear that all other goals – for example a phylogenetic nomenclature, however, "interesting" they may appear from a purely theoretical point of view – do not have the same priority (cp. DUBOIS 2006a).

5.1.1 Published versus unpublished evidence

"Types" must be fixed originally for new taxa established after 1999 (ICZN 1999 Art. 16.4, 72.3). This statement simply requires a designation, but not clearly – viz. only in a recommendation (Rec. 16C) and for the "neotype" (Art. 75.3.7) – that the onomatophoront has to be preserved after designation and description (cp. DUBOIS & NEMÉSIO 2007). This results in the perplexing situation that, for instance, *Enchelyodon kenyaensis* FOISSNER, AGATHA & BERGER, 2002 is available, although "type" material is absent (Tab. 4), while more than 20 names are unavailable (see chapter 3), because formal "typification" has been forgotten par lapsus by FOISSNER & XU (2007; pers. comm.), although onomatophoronts are already deposited. Perhaps, since a second volume of the book is announced, Art. 10.1.1 of the ICZN (1999) can be applied referring to interrupted publication, continued at a later date, which makes the names available. Likewise complex is the case of *Protospathidium vermiforme* FOISSNER, AGATHA & BERGER, 2002, which remained untypified (see their table 1 and page 310), because it is an replacement name for a misidentified *P. bonneti*, redescribed by FOISSNER (1981), but without "neotype".

Likely due to an overload with taxonomic matters, "type" designation has been omitted in several big revisions (e.g. FOISSNER 1993, partially FOISSNER et al. 1991, 1994, FOISSNER & XU 2007) and some smaller papers after 2000 (e.g. FOISSNER 2003a). Provided an unambiguous labelling and deposition of the respective slides, I suggest considering them as subsequently designated by the original author. Unfortunately, the recommendations for labelling a "type" (cp. 16D, 72D, E, 73C, D, E) are rarely fulfiled, but moreover, the ICZN (1999) is ambiguous concerning the inclusion of external, viz. unpublished, evidence such as labels of specimen and collector's notes (cp. pro – Art. 72.4.1.1, 73.1.2, 73.2.1 and Rec. 76A; contra – Art. 7, 9, 72.4.7). For me an originally labelled slide in an official repository and data accompanying the original material should be given more weight in future rulings. This topic is closely interrelated with the next, both indicating that theory, i.e. designation, has priority over practice, i.e. deposition, in the present ICZN. As the ranks and concepts of a species, genus or other category cannot be defined objectively, the respective name-bearers should be differentiated as suggested by DUBOIS (2000; cp. chapter 2.1.2).

5.1.2 Immaterial versus material evidence

As KNAPP et al. (2004) noted it seems logical to assume that "type" specimens should be deposited in public institutions that will care for them in perpetuity – they are held in trust for future generations of biologists. Strangely, none of the codes specifies the deposition of all "types" in public institutions. It is required by the ICZN (1999 Art. 75.3.7) that "neotypes" be deposited in public institutions; why should the same not be mandatory for other primary "types" (holotypes, syntypes, lectotypes)? "Type" specimens deposited in pri-

vate collections (personal herbaria or museums) often are lost, either temporarily or permanently, when the owner of the collection dies or the collection is broken up. This is particularly problematic for "holotypes" based on unicate (single specimen) collections and for difficult-to-maintain bacterial cultures. The Bacteriological Code now requires new names to be "typified" with living cultures maintained in two registered collections (LAPAGE et al. 1992; DE VOS & TRÜPER 2000). Authors must also provide evidence as to the deposition and availability of the strains. This sort of deposition of specimens and declaration of the open accessibility of the specimens would be a logical and welcome step for the other codes to follow, modified of course to conform to the specifics of the sorts of specimens involved.

A further question conserns dead or alive specimens as onomatophoronts (cp. DALEBOUT & BAKER 2002; WAKEHAM-DAWSON et al. 2002): Larger algae, shelled foraminifera, and silver-stained preparations of ciliates may be preserved for posterity. There is no easy means of obtaining "type" material for many smaller algae, amoebae, or heterotrophic flagellates. These organisms often occur in diverse communities, and each species is often present in low abundances. To obtain "type" organisms from natural communities requires that individual cells be isolated, a suitable medium and food found, and conditions for growth established so that large numbers of cells are available. Subsequently, some device has to be used that will preserve the cells so that their diagnostic features can be freely observed. This process requires considerable time and manpower, with no guarantee of success (PATTERSON & LARSEN 1992).

Representation of protists in culture collections, some international in coverage, is on the increase (CORLISS 1965; DAGGETT 1980; see also online culture collection in chapter 7). Apart from the great deal of labor involved in establishing and maintaining such a culture collection, only a small portion of ciliates and other protists are cultivable (WILLIAMSON et al. 2007). To obviate changes which might occur over a prolonged time, all available strains have been cryopreserved (DAGGETT 1980; DAY & PRÖSCHOLD 2007).

Due to difficulties in preservation illustrations are increasingly designated as onomatophoronts for ciliates, e.g. for *Sturiella oblonga* (BORZA 1981), five *Praecalpionellites* spp. (GRÜN & BLAU 1999); *Pelagothrix chlorelligera* FOISSNER, BERGER & SCHAUMBURG, 1999, *Paramecium triassicum* FOISSNER & SCHÖNBORN in SCHÖNBORN, DÖRFELT, FOISSNER, KRIENITZ & SCHÄFER, 1999, *Rostrophrya fenestrata* FOISSNER, AGATHA & BERGER, 2002, *Nassula tuberculata* FOISSNER, AGATHA & BERGER, 2002 and further protists (e.g. BANDONI & DUSZYNSKI 1988; MIKRJUKOV & MYLNIKOV 2001; HAUSMANN et al. 2002; NITSCHE et al. 2007). The present practice of using illustrations as "holotypes" does not solve the underlying problem (HAWKSWORTH 1992; DUBOIS & NEMÉSIO 2007) because these illustrations cannot be examined to reveal new data when an existing description is found to be incomplete or inaccurate. Further, features which are considered as unimportant at the time of description may later become decisive taxonomic characters for comparison with new species (FOISSNER 2002: 166). Moreover, illustrations can serve as surrogate lectotypes (ICZN 1999 Art. 74.4), but they cannot serve as neotypes, which must be specimens (Art. 75).

Genomes are discussed as further alternatives to conventional "type" material (e.g. ADL et al. 2007). However, if care is not taken during the introduction of new technologies (particularly molecular criteria), the identities of organisms studied by early workers can easily become confused. The sole use of the DNA sequence of a particular gene, perhaps using different genes for each taxonomic group, seems to me a retrograde step, tantamount to throwing away good data (cp. KNAPP et al. 2004; WILLIAMSON et al. 2007). The checks and balances of the morphology of an actual specimen on which a taxonomist can examine additional characters are critical for the best taxonomic practice; the more data the better. The examination of "type" material is the single most reliable means to avoid misapplication of names and superfluous redescription of taxa already known to science.

5.1.3 Single specimen versus multiple specimens

Note that for curatorial purposes in protistology at present the effective units are the slides, which almost invariably can embrace several specimens (cp. homepage of BMNH). This contradicts an important principle of most nomenclatural codes, that is "To be objective a type must be unique, for identification of two or more individuals to the same species is always, in the last resort, a matter of subjective judgement" (MELVILLE 1980). The best words on this paradox have been found by DASTON (2004) and are thus cited here (of course they also apply to heterotrophic organisms): "The name of a [...] species does not inhere in the population of all members of that species, nor in some abstracted prototype or essence of the species, but rather in a single, concrete individual specimen that has been designated by the person who first publishes a newly discovered species as its holotype or type specimen, ideally for all time. [...] the modern type specimen achieved its paradoxical status as a concrete abstraction [...] type specimens turn the traditional logic of abstract ideas as the basis for the classification of particulars on its head, defy the canons of reliable sampling and inference, and are emphatically not prototypes or archetypes or anything

else smacking of the Platonic. Nor are they triumphs of nominalism: individual plants represent species; they do not, so to speak, supplant them. [...] Article after article weighed the pros and cons of multiple versus unique type specimens, but most plumped for singular specimens as the only way to insure the singularity of species names, despite the difficulties entailed by applying this rule to polymorphous plants or to fragmentary. [...] It is the calibration of species – always incorporated in particular specimens – with the holotype and description that forges the chain of transmission. This is neither realism – botanical species as essences – nor nominalism – species as random agglomerations of individuals. It is equally difficult to locate along the axis running from concrete to abstract. The holotype and its practices of induction between particulars have created a new way of representing the many by the one, a particular that stands in for the species, a type incarnate in the individual. Metaphysics in action."

Consequently, the definition of the kinds of name-bearers should be much more stringent in a future edition of the ICZN:

(i) A "holotype" is based on unicate (single specimen) collections, this is conflicting since a hapantotype or a single unique collection (see below) is also a "holotype" (ICZN 1999 Art. 73.3). Why is individual not used in the ICZN and other codes? The confusing terminology is illustrated by the protist *Pneumocystis*, recently recognised as fungus, which resulted in a nomenclatural shift from the ICZN to the ICBN (REDHEAD et al. 2006). The authors noted that the same may be true for all microsporidians and sundry other organisms and give guidelines for the publication of new species of *Pneumocystis*: "[...]a holotype, which is a single unique collection, must be designated and its single place of deposit explicitely indicated. Additional "types" (paratypes [different collections or isolates], isotypes [duplicate of the holotype in another institute] may supplement the description but are not required. Therefore, care must be taken to not indicate one collection/isolate and then several places of deposit without specifically indicating which institute curates the designated holotype. [...] The holotype may be a specimen, and for *Pneumocystis* this may be a permanent stained slide. In particular for Fungi (unlike plants), a cryopreserved isolate (e.g. lyophilized or frozen in liquid or vapour phase nitrogen, or in an ultra-cool freezer) can be designated (Art. 8.4). A living metabolically active isolate (i.e. non-frozen, non-lyophilized) may not be designated as a holotype, although such a specimen or isolate can complement a preserved specimen. A third possibility is the designation of an illustration, presumably photograph, as holotype, but that is only allowed if it is technically difficult to preserve a specimen. Hence, designation of either published photographs, which must represent a single collection or sample and not multiple samples, or photographs or micrographs deposited in an institute must be accompanied by an explanation as to why it was technically difficult to preserve a specimen."

(ii) It seems quite ambiguous that although "paratypes" belong to the "type" series, they are no name-bearers and do not become "syntypes" if the "holotype" is lost or destroyed (ICZN 1999 Art. 72.4.5, 72.10). The contradictory was transported in brief and usable definitions of "types" of CORLISS (1962b, 1972a) for protistologists. Why can "paratypes" not be used for "lectotype" selection (Art. 74), but are eligible for "neotype" selection (Rec. 75A)?

(iii) Although the term population is not used in the ICZN, it is implied in the term "syntype" (SIMPSON 1940), because two or more localities, thus places of different origin (ICZN 1999 Art. 73.2.3; 76.1) may be embraced. This contradicts the principle of "the original type locality" demanded for "neotypes" (Art. 75.3.6).

(iv) The characterization of a "hapantotype" is scattered in Art. 72.5.2 (colony[...] derived by asexual or vegetative multiplication), 72.5.4 (directly related individuals representing differing stages in the life cycle), 73.3 (one or more preparations) and the glossary of the ICZN (is a "holotype" that must not be restricted by lectotype selection). For 12 *Sarcocystis* species sets of three slides and two micrographs (light and electron) and three texts are declared as "neohepantotypes" (instead of neohapantotypes) by MEHLHORN et al. (1985) and were sent out to 24 institutions worldwide. According to their list of details only young, infectious tissue cysts and a semi-thin section of them are embraced in the set, while "all developmental stages" are provided in a "short" description. Moreover, no references to "type" localities are provided. This raises the questions of inevitable material vouchers, the status of illustrations and what is a complex life cycle? The cycle of ciliates may also embrace cysts, which are increasingly recognized as important for alpha-taxonomy (FOISSNER 1993: 153, 165, FOISSNER & BERGER 1999, FOISSNER et al. 2002: 438), micro- and macrostomes and complex ontogenetic stages. Are thus the cases discussed in the present catalogue "neohapantotypes"? What is really meant by a "holo- and lectohapantotype" mentioned by MELVILLE (1980) – a member of the Commission – if a "hapantotype" is to be treated as indivisible? If a slide is considered as the effective unit for protists, Rec. 72C of ICZN (1999) referring to the marking of important individuals becames quite often nearly impractical (e.g. Fig. 35).

(v) The ICZN clearly and understandably does not favour "neotypes" and in many circumstances the non-existence of a "type" is not a sufficient reason by itself to designate a "neotype". Numerous complicated cases of diverse zoological groups are treated in detail by the Commission in the "Bulletin of Zoological Nomenclature". However, since 40 years, when CORLISS et al. (1965) and CORLISS (1972a) established some "neotypes" for "difficult" ciliates, further species have been increasingly neotypified without application to the Commission. In 2002, FOISSNER has submitted a general article on neotypification to the "Bulletin of Zoological Nomenclature" summarising the situation in protists and focusing on the "type" locality regulation of the Art. 75.3.6 of the ICZN (1999).

In the following two years five comments of 12 persons appeared in this Bulletin, among them the two editors of scientific journals and one non-protistologist. Seven supported the proposal of waving Art. 75.3.6 or consider it as flexible enough (CORLISS & SONG 2003; DRAGESCO & AL-RASHEID 2003; SLEIGH et al. 2003). REVETS (2004) argues against the proposal, because a special interest group is created and the universality and the authority of the ICZN would be destroyed. Four colleagues of the BMNH in London (CURDS et al. 2005) oppose to the phylum wide derogation of Art. 75.3.6 based on the false assumption (cp. chapter 2.1.2 and 5.2.3) that "neotypification inevitably defines the taxon's range of morphological variability" and that illustrations are "an acceptable kind of nomenclatural type". Apart from a thorough check for existing material and lectotypification, they suggest that (i) "a journal of record should be designated so that the search for taxonomic acts can be greatly facilitated" and (ii) "the deposition of molecular sequence data to accompany the actual specimens and/or illustrations on which newly described protistan taxa have been based". I support here the view that such practices are not doing a service to the discipline of taxonomy as illustrations, DNA sequences or "definitions" cannot replace voucher specimens (cp. DUBOIS & NEMÉSIO 2007). Provided that neotypification is based on a thorough redescription of the organism and usable "neotype" material has been deposited in an acknowledged repository, its increasing usage is inevitable to avoid an inflation of newly established names. Protistologists are necessarily a special interest group and our problems should be reflected in future regulations, viz. the fifth edition of the ICZN. Under the light of the present evaluation, which reveals about one third prospective neotypes, not only deviating from "type" locality regulation, but also from the "single specimen" principle – unfortunately not clearly expressed in the ICZN, but rigorously applied in the cases treated in the "Bulletin of Zoological Nomenclature", an enormous amount of work awaits the very few people interested in protistan alpha-taxonomy and nomenclature and the Commission to which the cases will have to be referred for validation (see below).

5.1.4 Further notes

The botanical practice of citing basionyms should be adopted in the future ICZN in the adapted form of the protonym suggested by DUBOIS (2000). Likewise as exemplified in chapter 2.1, I agree that a much more precise terminology is necessary to unravel the nomenclature and particularly that the misleading term "type" and its derivatives should be abandoned. Concerning for instance *Trypanosoma cruzi* and other organisms, the word "typification" refers to biochemical characterization (e.g. REDHEAD et al. 2006) rather than the act of designating a "type" specimen, thus in a nomenclatural context this term might be replaced by **onymification**. Due to the fact that the citation of describing author(s) is optional (ICZN 1999 Art. 51.1) and the new problem that new taxa are increasingly described and recombined in papers signed by long lists of co-workers, DUBOIS (2000, 2008) proposed a partial but radical solution in shortening the bibliographic reference to the date(s). Although the drastic change was not followed yet, the proposal is worth of being taken into account because for instance *Telotrochidium matiense* (MARTIN-CERECEDA, SERRANO & GUINEA, 1999) MARTIN-CERECEDA, GUINEA, BONACCORSO, DYAL, NOVARINO & FOISSNER, 2007 would become *T. matiense* (1999) 2007 and *Declivistoma enchelyodontides* (FOISSNER, AGATHA & BERGER, 2002) FOISSNER, AGATHA & BERGER in BERGER & AL-RASHEID, 2008 would shorten to *D. enchelyodontides* (2002) 2008. The results in chapter 3 and the above discussion clearly show that the status of recommendations is often unclear and consequently remain frequently unfollowed. Improving the glossary and index of the ICZN may also help to improve univocality (absence of ambiguity) and overcome the role of nomenclature as "dry dusty subject" (KNAPP et al. 2004; DUBOIS 2006c).

As CORLISS (1962b!) already noted, from a practical point of view it is discouraging to the conscientious taxonomic protistologist to even contemplate making use of petitions to the authoritative international body of nomenclaturists. Reasons: we have so many hundreds of cases requiring treatment; composing a petition is often a long and difficult task (the Commission itself is only a fact-reviewing not a fact-finding board); and so few cases can be dealt with annually by the Commissioners (but through no particular lack of diligence on their part). With respect to the last point the figures given are truly appalling: from 1907 to 1936, only 133 cases were considered by the Commission; from 1936 to 1950, 218

decisions were made (still only 14 per year); in 1951, 268 cases were on the docket and new applications were being received at the rate of about 100 per year and amount to 3452 until March 2008 according to the last issue of the "Bulletin of Zoological Nomenclature"! The international community of zoologists – including protistologists – should take the necessary steps to update the ICZN before it is wiped out by alternative codes or ignorance. One of the main points will be to improve automaticity, viz. absence of arbitary or bureaucratic decisions (e.g. DUBOIS 2005b, 2006c).

5.2 Evaluation of "typification" in protistology

The practice of "typification" in protistology was reviewed above spanning about 30 years (chapter 3) indicating that the designation of the different sorts of "types" is often bewildering. Considering further literature, albeit rather intermittently, the terms "holo-, para-, syn- and neotype" have been quite inconsistently applied, lectotypification has been performed very rarely (Tab. 1). Moreover, terms not included in the ICZN, such as "hypotype" (SALLEY et al. 1978), "photosyntypes" (light micrographs; DYKOVÁ et al. 2005), "paraneotype" (e.g. GONG et al. 2002; LIN et al. 2004) or "symbiotype" (BANDYOPADHYAY et al. 2007) can be found. The "type" locality and rationale for neotypification are widely ignored (e.g. FOISSNER group in the mid 1980s; DRAGESCO 1999a, b, 2002, 2003; PETZ et al. 1995; SONG et al. 2001). Since only rarely a single individual reveals all necessary diagnostic characters, several differently stained permanent preparations are declared as "holotype" in many cases. In 1985 the concept of the "hapantotype" has been established for protozoans, but until now it has hardly been used for ciliates (e.g. GRANDA & MONTAGNES 2003, although it is in fact a "neohapantotype"), even if ontogenesis is included (e.g. EIGNER & FOISSNER 1992; VOSS 1997; FOISSNER & BERGER 1999; SONG et al. 2001; SCHÖDEL 2006) and it is even not consequently used for parasites, where "syntypes" are designated recently (e.g. BRONNVALL & LARSSON 2001; KORNILOVA 2004; AL QURAISHY et al. 2007). BISWAS et al. (2004) simultaneously designated "syntypes and hapantotypes" for a new apicomplexan species; for a latter member also the combination "hapantotype and iconotype" (a term not used in the ICZN) exists (LEANDER & RAMEY 2006). Hapantotypification applied to a "neotype" can be found in XU & SONG (2006), "hapantotypes and parahapantotypes" are designated by KUDRYAVTSEV & HAUSMANN (2007). These terminological difficulties are accompanied by further particular problems concerning singel-celled organisms.

5.2.1 Problems of dimension, diversity and transient nature of populations

The study and preservation of many protists are not as straightforward as they are with most more-visible (so-called higher) animals and plants, because of their microscopic size (usual range 2–2000 m with a strong bias toward a very small scale) and the transient nature of their populations, viz. they are encysted most of their life (FOISSNER 2006, 2007). Only when the appropriate conditions set in, do they excyst and become recognisable. Then, however, many of them – it is well known that rare species comprise more than 80 % of the total species in practically all organism communities – may be hidden by an abundance of a few ubiquitous and numerically dominant species (FOISSNER 2006). Thus, only when comparatively large samples are carefully (!) inspected by an experienced (!) investigator, are these rare species recognized (FOISSNER et al. 2002, 2005, 2008). The grand total of described-to-date protists, no matter how classified, reaches at least 300,000 species distributed among about three dozen phyla belonging to the five eukaryotic kingdoms challenging the few investigators devoting to this field (e.g. CORLISS 2002; FOISSNER 2002, 2006, 2008; PATTERSON 1999, 2003; ADL et al. 2005, 2007). In toto, their cytoarchitectural diversity and complexity – the list is far from exhaustive – is unique among all living things on earth. Controversial problems, such as the "species problem" and arguments of ubiquity versus endemicity (see below), not trivial matters, are not made any easier by either the legitimate concerns of nomenclaturists (worried about synonymies, etc.) or the sobering predictions of census- or inventory-takers who estimate that protist species-yet-to-be-described are probably at least two or three times greater than those named and catalogued to date (CORLISS 2002; FOISSNER 2008).

Many ciliates and other protists are considered as being cosmopolitan, at least at morphospecies level (FINLAY et al. 1996, FOISSNER 1999, 2006, 2007, 2008), but there remains reasonable doubt that it is really so. More important is that they are very patchily distributed according to their microhabitat requirements. These microhabitats are usually transient, so that a species may have become extinct in the "type" localiy, but may be abundant in other places (SLEIGH et al. 2003). Furthermore, the chances of rediscovering such minute organisms at a certain locality are minimal because they may be in a dormant (cystic) stage most of their lives and cultivation is quite often not successful. In addition, many are symbionts, commensals, or parasites of metazoan animals that often have a much wider biogeographical distribution than the narrow definition of 'type locality' implies. Unfortunately, biogeography of protists is still in its infancy (FOISSNER 2006, 2007, 2008; ADL et al. 2007).

5.2.2 Problems of lack and adequacy of "type" material

Beside their small size and immense diversity, the selective staining methods now available restrict the observable necessary features for identification (WEISER 1963; CORLISS 1963, 1965, 1972). Familiarity with at least four silver methods (or modifications) is an absolute prerequisite for successful taxonomic work. No staining method is equally appropriate to all kinds of ciliates and many heterotrophic and autotrophic flagellates (FOISSNER 1991: 314). Apart from silver impregnation (Fig. 2, 3, 5–7, 9–36), various other staining techniques are useful for taxonomic work with ciliates, especially the Feulgen nucleal reaction and supravital staining with methyl green-pyronin in order to reveal, respectively, the nuclear apparatus and the mucocysts. The preparation is yet temporary. Moreover, many important species characters cannot be seen or are changed in silvered specimens. In addition, several species (e.g., in the genera *Pseudoprorodon* and *Stentor*) persistently withstand our methods, their infraciliature and/or silverline system impregnates poorly or not at all (FOISSNER 2002, FOISSNER et al. 2002).

Good descriptions usually demand at least live observations, particularly on colour pigments, extrusomes and movement, silver nitrate and protargol or silver carbonate impregnation. Only the combination of observations, viz. the "constellation of characters" principle (CORLISS 1976), from living and prepared cells can provide sufficient information for a reliable determination. Additional important features are increasingly discovered, e.g. the resting cysts are much more diverse and are thus of great importance for alpha-taxonomy. Further improvements of existing methods or new techniques should therefore be developed (FOISSNER 1991, 1993, 2002). However, if care is not taken during the introduction of new technologies (particularly molecular criteria), the identities of organisms studied by early workers can easily become confused; normally, such difficulties can be resolved by reference to "type" material (e.g. PATTERSON & LARSEN 1992; ADL et al. 2007). As a result of these drawbacks, protistan systematics lays nearly a century behind the taxonomy of the better-known plant and animal groups and discussion concerning the adequacy, i.e. determinability, of deposited material is at its very beginning.

5.2.3 The underestimated role of repositories and documentation

Of course the traditions concerning palaeozoological collections are essentially different from those of extant non-shelled species (ZILCH 1939; WIKTOR & RYDZEWSKI 1991). However, it is not widely known that Christian Gottfried EHRENBERG, one of the most important workers on the taxonomy of microscopic organisms, already cared to conserve his species and distributed vouchers to colleagues and museums (EHRENBERG 1837) and that some 40,000 microscope preparations, several thousand raw samples – mostly of diatoms and radiolaria – and thousands of illustrations are now available at the Museum für Naturkunde in Berlin (LAZARUS 1998, LAZARUS & JAHN 1998). Ongoing projects to re-catalogue the collection, improve access to materials, and to identify and re-illustrate the "type" material are highly welcomed and hopefully increase the interest in such "storing" activities, which are often denigrated, but absolutely necessary for the stability of nomenclature and reputation of taxonomy.

CORLISS (1963a, b) established an international "type"-slide collection for ciliates on the University of Illinois. Later it was transferred to the Smithsonian Institution (United States National Museum, USNM), comprising some 180 "type"-specimens, representing 105 species; until 1972 it increased to over 250 slides representing about 125 nominal ciliate species (CORLISS 1972a). According to COLE (1994) the respective values are 400 and 300, from which 159 ciliate species are listed in her catalogue (cp. Tab. 1); including further protists the collection embraced 650 slides of approximately 542 species. The British Museum in London actually lists about 140 identified ciliate species online not specifying if they are "types". "Syntypes" of eight protist species are deposited in Canada (WEBSTER 1979), likewise small numbers are encountered in SALLEY et al. (1978), BOYKO (1994) and BAKKEN (1999). Further existing protist "types" are widely dispersed (cp. chapter 3), in numerous cases material is difficult to obtain because it is deposited in a university, e.g. the increasing collection in Qingdao, China, or private collections (cp. CORLISS 1972a; FOISSNER & PFISTER 1997, FOISSNER 2002, FOISSNER et al. 2002). Hence, the collection in Linz is the most comprehensive one worldwide.

Thus in general, the taxonomist who wishes to make a scholarly study of a group of species, including an investigation of their "typification", faces the formidable task of locating the relevant original descriptions and "type" specimens. It seems to be a more general trend in recent scientific literature dealing with systematics, phylogeny and evolutionary biology, where the important role of vouchers is underestimated, if not ignored or denied (FUNK et al. 2005; DUBOIS & NEMÉSIO 2007). This is illustrated by the fact that some major databases such as GenBank do not require the indication of voucher specimens associated with the information they store (molecular sequences in the case of GenBank). Even the Zoological Record is very incomplete

(cp. chapter 5.2 and AESCHT 2001), viz. out of about 13,000 ciliate items less than 1 % refer to "type designation" or "typification": also included are the designations of "type" species and "type" genera and nine of these deal with the comments to the general article on neotypification (cp. chapter 5.1.3). In fact, a total of eight refers to "hapantotypes" and five items remain indicating "neotypes", non for "holo-, syn- or lectotypes". Likewise, "type" localities and depositories are not indexed.

5.2.4 Two sides of a coin: taxonomy (science) and nomenclature (tool)

5.2.4.1 Confusing taxonomy and nomenclature

The ICZN (1999) operates on a number of simple principles. However, sometimes an inappropriate interpretation of the principles and rules causes confusion (cp. AESCHT 2001). Most of the problems discussed above derive, as many other ones in systematics (DUBOIS 2005a, b, 2006b), from confusion between the fields of taxonomy (recognising or diagnosing taxa) and nomenclature (naming taxa).

The first surprise to many scientists not familiar with taxonomy is that the ICZN does not attempt to regulate either which methods or species concepts are to be used, or which taxonomic interpretation of a given problem is correct (i.e. there is no regulated 'official' taxonomy). The ICZN deals solely with the way in which names are assigned to organisms, and which of these are to be used. Simple though this may appear, the ICZN is often misunderstood. It is because the ICZN is not correctly understood that names are used wrongly, or mistakes appear in the literature which can be misleading (cp. also chapter 4.2).

Secondly, unlike many evolutionary biologists believe (e.g. HEYWOOD & ROTHSCHILD 1987, ROTHSCHILD & HEYWOOD 1988), the ICZN does not regulate all nomina, but only those from the rank subspecies to the rank superfamily, excluding those of orders, classes and other higher categories, and those below the rank subspecies. The use of ranks and nominal-series in zoological nomenclature has recently been challenged by some authors who support unranked systems of nomenclature (ROTHSCHILD & HEYWOOD 1988; PATTERSON 1999, PATTERSON & LARSEN 1992; ADL et al. 2005, 2007). Nomenclatural ranks express only a position in a taxonomic hierarchy. If used consistently (which is not always the case), this system is very useful for the storage and retrieval of taxonomic and phylogenetic information. DUBOIS (2007) clearly shows that this criticism is based on a double misunderstanding: (1) the confusion between nomenclatural ranks and taxonomic categories; (2) the request for a monosemic nomenclatural system, not for scientific reasons, but to please non-taxonomists, especially customers of the web. It is already argued by DUBOIS (2005a: 412-413, 2006b: 219-220) that nomenclatural ranks and taxonomic categories should be clearly distinguished and designated by different terms, and that the ICZN should be modified in order to make this distinction clear. Moreover, there is no theoretical reason for limiting this hierarchy of nomenclatural ranks either upwards, downwards or inwards (DUBOIS 2007). Consequently, DUBOIS (2005a, b, 2006b) further suggested that the nomina of higher-ranked taxa (nomenclatural class-series) should be incorporated into the ICZN; this system could be qualified as a system of bidirectional ostension, being a combination of inclusive and exclusive ostension. Such amendment would be very beneficial to unravel the system of protists, which is in a great flux. Already CORLISS (1972b, 1983) discussed the (unnecessary) proliferation of new names for redefined or reshuffled high-level taxa, i.e. kingdoms and phyla of protists and suggested to the use of either vernacular names (with a lowercase letter; a safe and inoffensive approach) or of existing names (a sensible as well as courteus approach).

5.2.4.2 "Types" are not necessarily typical

The principle of "typification" is of undeniable value. It means that each nominal taxon in the family, genus or species groups has actually or potentially a name-bearing "type". The fixation of the name-bearing "type" of a nominal taxon provides the objective standard of reference for the application of the name it bears (ICZN 1999 Art. 61.1). "Typification" links the concept of a species to concrete specimens, the concept of a genus to a definite species, and that of a family to a definite genus.

But recall that at the basic level it must be distinguished between the name-bearing and the group-exemplifying functions (SIMPSON 1940):

(i) A "type" specimen is only the name-bearers of a nominal species. Such "type" is purely a nomenclatural concept, and has no significance for classification. It is not necessarily the most typical or representative element of the taxon in terms of range of variation (SIMPSON 1940; DASTON 2004) and thus does not guide scientists in their taxonomic decisions (cp. chapters 2.1.2, 5.1.3). In other words, a "type" specimen must not be considered as source of all descriptive data needed in identification of the species! This is the main reason, why the possibility of "hapantotypes" is not used herein.

(ii) Full characterization of a species must include not only the results of a comparative study of populations of the organism but consideration of its living aspects, entire life cycle (morphogenesis, cysts, polymor-

phism, swarmers, micro-macrostomes), behaviour, ecology, genetics and of its variation under differing conditions. Text and figures of original and subsequent descriptions must be considered by later workers (cp. already CORLISS 1972a) and in detailed revisions (e.g., FOISSNER 1993; BERGER 2006).

5.3 Guideline for "typification" of species

The deposition of "type" and/or voucher slides should became a standard procedure during taxonomic and ecological work. It is the only possibility to re-study populations and related concepts. Ideally this material is to be held in trust for science by a person responsible for their safe keeping. This responsibility on a fairly long-term basis is costly and cannot be provided in private collections and in universities with their temporary stuff. Thus, "types" should be housed in acknowledged repositories. The Biology Centre in Linz is such an institution and moreover the sole worldwide with a trained protistologist to ensure safety and the future availability to colleagues. **Don't forget that onomatophores must be fixed originally for a new species, genus and family established, unless these taxa are "non-existent" in zoological nomenclature!**

As the basis of any biological classification is in practice one individual per species, the specific suggestions to contributors of collections, already proposed by CORLISS (1972a) are actualised, grouped, and extended here as follows:

(1) Specimens should be preserved on slides by any of several methods of silver impregnation. Such preparations are generally the most useful as "type" material because of their permanence and what they reveal by way of morphological characteristics of comparative taxonomic significance. Other techniques (e.g. hematoxylin, Feulgen nucleal reaction, Borax carmine, Giemsa, nigrosin), if they give adequate results, are not to be and cannot be excluded, of course! It is important that details on preparation and embedding method for future remounting are included for the repository.

(2) Single out one individual as "holotype" (ICZN 1999 Art. 73.1), further specimens may be designated as "paratypes" (Rec. 73D; Fig. 18, 20, 31-34). If different ontogenetic stages are embraced in one or more slide(s) or different preparation methods for a population from a single source are applied, they should be declared as "syntypes" (Art. 73.2.1.1). Concerning neotypification, also only one individual should be selected, further slides represent vouchers.

(3) Note that the labelling of slides, despite of the restricted space, should not be underestimated. Moreover, it has to be done by the depositor and is not performed in a standarised form by a curator. The data on the label should be in accordance with published ones (cp. chapter 2.1.1). In addition to Recommendation 73C of the ICZN (1999) concerning data on the "holotype", the microhabitat should be included for protists, at least in the publication (cp. chapter 5.2.1). If appropriate, the "type" slide(s) should be accompanied by an equally sized sheet of paper, which states the species and the kind of "types" contained (H – "holotype" specimen, N – "neotype" specimen, P – "paratype" specimen, V – voucher). Apart from the "holotype", which is usually drawn, further specimens which served as a basis for illustrations should be marked by the letter "D" (Fig. 34-36).

(4) Mark (use different colours on an external sheet of paper; Fig. 35, 36) distinctly the locations of specimens considered to be of crucial importance in demonstrating the taxonomic characters according to Rec. 72C of the ICZN (1999).

(5) Select one or two repositories: A second repository is a highly recommended procedure, for such obvious reasons as safety and the convenience of future availability to other protistologists. The voucher(s), particularly "type" slide(s), should be immediately deposited and mailed with greatest care (not simply scantily wrapped and placed in an ordinary envelope with an accompanying letter! Such slides may arrive completely broken). Their arrival will be acknowledged along with the assignment of a permanent number in the collection. Inventory numbers will be only applied for deposited slides and no more in advance to avoid later discrepancies between publication and existence in the collection. Checking the label and marks on it may be a help for untrained taxonomists in designating categories of onymophoronts and unburden editors of scientific journals to fulfil the ICZN.

(6) Include the original designation, the number of slides and the place of deposit of these "type" specimens in the original description of the new species, according to Rec. 72E of the ICZN (1999) all information on labels should be cited. The deposition of vouchers should also be published to facilitate the future recognition of this material. Include the official acronym of the repository, for instance **LI** for the Biology Centre of the Upper Austrian Museum in Linz according to the Biological Repositories Organisation (www.biorepositories.org).

(7) After delivery of the publication two reprints or one pdf-file of the paper have to be sent to the repository, to ensure the link between material and circumscription. The paper will be filed and kept in the vicinity of the specimen collection.

(8) In accordance with the ICZN (1999 Rec. 72F), all material received will be properly handled and indexed and regarded as "property of science"; preparations of name-bearers will be made available in Linz to qualified workers who need them temporarily for research purposes. "Paratypes" and vouchers may be borrowed by investigators connected with museums, other research institutions or specialisits of a group. The principal value of a collection, of course, resides in its wide usage!

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7 References

Only references occurring in the general chapters are given in full length, because literature referring to "type" material in chapter 3 is cited by complete authorship, journal, volume (bold) and page number(s). Most of them can be found in the bibliography (and references therein) of W. FOISSNER (cp. AESCHT & BERGER, present issue). For ease of user, further references concerning deposition, viz. of other authors and those of W. FOISSNER (and co-workers) also needed in the general section, are marked by an asterix.

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American Type Culture Collection (ATCC; www.atcc.org)

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British Museum of Natural History London, Microbiology Slide Collection (www.nhm.ac.uk/jdsml/research-curation/projects/protists/)

Culture Collections in the World (wdcm.nig.ac.jp/hpcc.html)

Culture Collection of Algae and Protozoa (CCAP; www.ccap.ac.uk)

Database of geographic coordinate information (www.tageo.com/index.php?show=search)

International Commission on Zoological Nomenclature (www.iczn.org/iczn/index.jsp)

ZOBODAT, Zoological Botanical Database, formerly ZOODAT (www.zobodat.at)

8 Abbreviations

AMS	Australian Museum, Sydney
Art.	article of ICZN
BMNH	British Museum (Natural History), London
E	east
HA	hapantophoront / "hapantotype"
HL	host locality
HP	holophoront / "holotype"
ICZN	International Code of Zoological Nomenclature
inv. no.	inventory number
N	north
NHMW	Naturhistorisches Museum, Wien
NP	neophoront / "neotype"
od	original designation
OT	onymotope / "type" locality
PP	paraphoront / "paratype"
Rec.	recommendation of ICZN
S	south
sd	subsequent designation
SP	symphoront / "syntype"
TH	"type" host
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC.
VO	voucher
W	west

9 Glossary

Anoplonym – published but nomenclaturally unavailable nomen according to the ICZN, being either (1) excluded under Art. 1.3, or (2) not conform to the provisions of Art. 10 to 20 (Dubois 2000).

Aphory – (from the Greek a- or an-, "without"), the situation where a new name was established without designated onomatophore; a taxon created with original aphory may later be provided an onomatophore in another publication ("subsequent type designation" under the terminology of the ICZN) (Dubois 2005a).

Aponym – subsequent, modified, morphonym (Dubois 2005a).

Author (or nomenclatural author) – Person(s) to whom a published work, protonym or nomenclatural act is attributed (ICZN 1999).

Available – available nomen (ICZN 1999); see hoplonym (Dubois 2000).

Basionym – a previously published legitimate name-bringing or epithet-bringing synonym from which a new name is formed for a taxon of different rank or position (term used in botanical nomenclature; ICBN 2006); correct spelling of the protonym (Dubois 2000).

Hapantotype – one or more preparations consisting of directly related individuals representing distinct stages in the life cycle, which together form the name-bearing "type" in an extant species of protistan (ICZN 1999 Art. 72.5.4, 73.3). A hapantotype, while a series of individuals, is a "holotype" that must not be restricted by lectotype selection; however, if a hapantotype is found to contain individuals of more than one species, components may be excluded until it contains individuals of only one species (ICZN 1999 Art. 73.3.2; glossary).

Holophoront – from the Greek holos, "whole, entire", instead of "holotype" of ICZN (Dubois 2005a).

Holotype – the single specimen (except in the case of a hapantotype) designated or otherwise fixed as the name-bearing "type" of a nominal species or subspecies when the nominal taxon is established (ICZN 1999; glossary).

Hoplonym – nomenclaturally available nomen according to the ICZN, as (1) not being excluded under Art. 1.3, and (2) conform to the provisions of Art. 10 to 20 (Dubois 2000).

Invalid – invalid hoplonym (akyronym): hoplonym not to be used to denote a taxon, as (1) being a junior synonym or homonym, or (2) having been invalidated as a result of automatic application of some special rules of the ICZN 1999 (e.g., Art. 40.2 or 59.3), or (3) having been invalidated by ICZN using its Plenary Powers (DUBOIS 2000).

Kyronym – from the Greek kyrios, "proper, correct", valid hoplonym of a taxon (DUBOIS 2000).

Morphonym – any particular spelling, onymorph or rank of a given nomen (DUBOIS 2000, 2005a and references therein).

Name – non-technical term used in common language with various meanings, including several ones liable to apply in zoological nomenclature: (1) nomen [Latin scientific name name of a taxon]; (2) one of the words of a binomen or of a trinomen; (3) chresonym [from Greek chresis, "usage"]; (4) name of author or of first-user of a nomen (ICZN 1999; DUBOIS 2000).

Name-bearing "type" – the "type" genus, "type" species, holotype, lectotype, series of syntypes (which together constitute the name-bearing "type") or "neotype" that provides the objective standard of reference whereby the application of the name of a nominal taxon can be determined (ICZN 1999; glossary).

Neophoront – from the Greek neos, "new", instead of neotype (DUBOIS 2005a).

Neotype – The single specimen designated as the name-bearing "type" of a nominal species or subspecies when there is a need to define the nominal taxon objectively and no name-bearing "type" is believed to be extant. If stability and universality are threatened, because an existing name-bearing "type" is either taxonomically inadequate or not in accord with the prevailing usage of a name, the Commission may use its plenary power to set aside that "type" and designate a neotype. (ICZN 1999; glossary)

Nucleogenus – onomatophore of a nomen of the family-series (i.e. of rank family or subfamily) replacing "type genus" of the ICZN, because it does not refer to specimens (onymophoronts; DUBOIS 2005a).

Nucleospecies – onomatophore of a nomen of the genus-series (i.e. of rank genus or subgenus) replacing "type species" of the ICZN, because it does not refer to specimens (onymophoronts; DUBOIS 2005a).

Onomatophore – objective standard of reference whereby the application of a nomen to a taxon can be determined (DUBOIS 2000, 2005a and references therein).

Onymology – the study of concepts and theory of biological nomenclature (DUBOIS 2000).

Onymophoront – from the Greek terms onymos, "name", -phoros,"bearing", and on ontos, "being, individual", replaces "type" specimens of the ICZN; four kinds: holophoront**,** symphoront**,** lectophoront and neophoront used by DUBOIS (2005a).

Onymorph – any particular association between genus-series substantive(s) and species-series epithet(s) (DUBOIS 2000, 2005a and references therein).

Onymotope – from the Greek onymos, "name", and topos, "place", the place of collection of the onymophoront(s), called "type" locality in the ICZN, or sometimes also terra typica or locus typicus by some zoologists (DUBOIS 2005a).

Onymotopic – any specimen collected from the same locality, whether or not an original member of the onomatophore, designated "topotypic" in the ICZN (DUBOIS 2005a).

Paratype – each specimen of a "type" series other than the "holotype" (ICZN 1999 Rec. 73D; glossary).

Protonym – original morphonym of a hoplonym (DUBOIS 2000, 2005a).

Semaphoront – means "bearing the signs, the characters" to designate a second and independent function of specimens, including "type specimens" (DUBOIS 2005a and references therein)

Subsequent – (1) subsequent publication: any publication mentioning a nomen published after the original publication. (2) subsequent spelling, onymorph or rank of a nomen, "type"-species designation, description, etc.: appearing in a subsequent publication (ICZN 1999).

Symphoront – from the Greek sun, "with, together", instead of "syntype" of ICZN (DUBOIS 2005a).

Syntype – each specimen of a "type" series from which neither a "holotype" nor a lectotype has been designated (ICZN 1999 Art. 72.1.2, 73.2, 74; glossary). The syntypes collectively constitute the name-bearing "type".

Taxon (pl. taxa) – any taxonomic unit recognized by a zoologist, whether named or not; a taxon is a class having a diagnosis, a content and boundaries (ideally at least an apomophy); when validly named according to the ICZN (1999), it is denoted by its kyronym (DUBOIS 2000).

Type-genus – the nominal genus that is the name-bearing type of a nominal family-group taxon (ICZN 1999).

Type locality – the geographical (and, where relevant, stratigraphical) place of capture, collection or observation of the name-bearing "type"; if there are syntypes, the "type" locality encompasses the localities of all of them [ICZN 1999 Art. 76.1, 73.2.3].

Type-species – the nominal species that is the name-bearing type of a nominal genus or subgenus (ICZN 1999).

Type-specimen(s) – a term used in previous editions of the code for a holotype, lectotype or neotype, or for any syntype; also used generally for any specimen of the type series (ICZN 1999).

Typification – the fixation of a name-bearing type of a nominal taxon so as to provide an objective standard of reference for the application of the name of a taxon (ICZN 1999).

Unavailability – of a name, nomenclatural act or work (ICZN 1999).

Validity – of an available name or a nomenclatural act: one that is acceptable under the provisions of the code and, in the case of a name, which is the correct name of a taxon in an author's taxonomic judgment (ICZN 1999).

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