

Video Database for Described Species of Marine Gastrotricha

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Abstract

Some 2500 high resolution video-micrographic images have been collected over the past decade, of which 1450 represent 144 of 372 described species of marine gastrotrichs. A set of 200 videos of these 144 species is being prepared in MPEG-2, WMV (= MPEG-4), and Real Media^{v.8} formats for use in teaching labs, ecological field studies and research. They can be accessed, along with the revised 2004 Global Database for marine Gastrotricha, from a server at <http://132.235.243.28> or <http://hummon-nas.biosci.ohiou.edu>. All video formats have the same duration, but differ in size and resolution. WMV or RM^{v.8} may serve as “thumbnails”, and MPEG-2 for research purposes where higher resolution is desired. Contents of the server are updated periodically as additional information is available and new species are described.

Keywords: Morphology, Identification, Field studies, Teaching, Systematics

Introduction

During the past fifteen years, while engaged in faunistic surveys of the marine meiofauna of different areas of the World, mostly North America and Mediterranean Sea (e.g. Hummon et al. 1992, 1993, 1994; Evans 1992, 1994; Hummon & Hummon 1992; Todaro 1994, 1995; Hummon & Roidu 1995; Todaro et al. 1995; Hummon 2001) we collected more than 2500 high resolution video sequences of marine gastrotrich species; of the video collection, 1450 sequences represent 144 of 372 described taxa. To make sequences readily accessible to the scientific community, the analog sequences, in NTSC standard, are being converted to digital formats, and made available through the internet. Hereafter we report details and the status of the process.

Materials and Methods

Nearly all of the 2,500 high resolution composite analog sequences have been digitized, representatives of those representing described species of marine gastrotrichs being edited and rendered into MPEG-2, WMV (= MPEG-4) and Real Media^{v.8} formats. The rendered videos utilize an average of 300, 30, and 6 MB respectively in the three formats, though with much variability [MPEG: 710 × 480 lines @ 30 frames per second; WMV: 320 × 240 lines @ 30 fps; RM v.8: 320 × 240 lines @ 15 fps]. The three formats are being distributed as read-only files, together with format readers, using a dedicated Snap Server 2200, with 250 GB capacity, mirrored on a second such hard drive as backup. Use of broadband is advised when downloading.

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Table 1. Sequences of Gastrotricha Macrodasysida already converted in digital format, 48 are presently on the server, with 40 yet to do. Abbreviations: m = mature, s = subadult, j = juvenile, c&c = caudum only, lat = lateral view, d/v = dorsoventral view.

Macrodasysida, 88 spp.			
Taxon	Video-data	Taxon	Video-data
Dactylopodolidae – 7 spp.		Thaumastodermatidae – 32 spp.	
<i>Dactylopodola agadasys</i>	#770 m lat, 770 m d/v	<i>Acanthodasys aculeatus</i>	#1735 m, 1734 j
<i>Dcp baltica</i>	#767 j	<i>Acd arcassonensis</i>	–
<i>Dcp mesotyphle</i>	#779 m	<i>Acd siloulus</i>	–
<i>Dcp typhle</i>	#110 m, 781 s, 787 j	<i>Diplodasys ankei</i>	#819 s
<i>Dendrodasys gracilis</i>	#117	<i>Dpd meloriae</i>	#820 j
<i>Ddd pacificus</i>	#795 m	<i>Dpd minor</i>	#821 m, 822 s
<i>Chordodasys riedli</i>	–	<i>Pseudostomella etrusca</i>	#903 m
Planodasyidae – 2 spp.		<i>Pss plumosa</i>	–
<i>Crasiella diptura</i>	–	<i>Pss roscovita</i>	#1754 m
<i>Crs pacifica</i>	–	<i>Ptychostomella tyrrhenica</i>	#914 m, 912 m lat, 912 m d/v
Lepidodasyidae – 15		<i>Tetranchyroderma anomalopsium</i>	–
<i>Cephalodasys littoralis</i>	–	<i>Tet aphenothigmum</i>	–
<i>Cfd pacificus</i>	–	<i>Tet boadeni</i>	–
<i>Cfd turbanelloides</i>	#1752 s	<i>Tet bunti</i>	#302 m
<i>Dolichodasys carolinensis</i>	–	<i>Tet cirrophorum</i>	#1450 s
<i>Dld delicatus</i>	–	<i>Tet enalosum</i>	–
<i>Dld elongatus</i>	#1732 m, 1747 s	<i>Tet esarhabdophorum</i>	#1372 m
<i>Lepidodasys martini</i>	#234 m	<i>Tet heterotubulatum</i>	#1463 m, 1466 s, 1461 s, 462 j
<i>Lpd unicarenatus</i>	–	<i>Tet hirtum</i>	#1453 m
<i>Megadasys pacificus</i>	#846 m, 847 s	<i>Tet hyposilancrum</i>	–
<i>Mgd sterreii</i>	#851 m, 1739 m	<i>Tet megastomum</i>	#1473 m, 1475 s, 1474 j
<i>Mesodasys adenotubulatus</i>	#873 m, 856 s	<i>Tet papii</i>	#1022 m, 1478 s
<i>Msd laticaudatus</i>	#861 m	<i>Tet polyprobolostomum</i>	#1484 m, 1486 s
<i>Msd littoralis</i>	#1224 m, 875 s	<i>Tet pugetensis</i>	–
<i>Paradasys pacificus</i>	–	<i>Tet quadritentaculatum</i>	–
<i>Pleurodasys helgolandicus</i>	#1749 m	<i>Tet sardum</i>	#293 m
Macrodasysidae – 16 spp		<i>Tet tanymesatherum</i>	–
<i>Macrodasys acradocytalis</i>	–	<i>Tet thysanogaster</i>	–
<i>Mcd ancocytalis</i>	–	<i>Tet thysanophorum</i>	#1558 m
<i>Mcd blystocytalis</i>	–	<i>Thaumastoderma heideri</i>	–
<i>Mcd caudatus</i> NEOTYPE	#1878 m	<i>Thu mediterranea</i>	#921 m
<i>Mcd deltoctyalis</i>	–	<i>Thu ramuliferum</i>	#925 m
<i>Mcd dolichocytalis</i>	–	Turbanellidae – 16 spp.	
<i>Mcd gerlachi</i>	#267 m	<i>Paraturbanella aggregotubulata</i>	–
<i>Mcd hexadactylus</i>	–	<i>Ptb dohrni</i>	–
<i>Mcd meristocytalis</i>	#1695 m	<i>Ptb intermedia</i>	–
<i>Mcd pacificus</i>	#1358 m	<i>Ptb pallida</i>	#977 m, 978 m, 979 s
<i>Mcd remanei</i>	#1756 j, 1757 j	<i>Ptb pallida pacifica</i>	–
<i>Mcd stenocytalis</i>	–	<i>Ptb solitaria</i>	#285 m
<i>Urodasys calicostylis</i>	–	<i>Ptb stradbroski</i>	–
<i>Urd remostylis</i>	–	<i>Ptb tesseri</i>	#991 m
<i>Urd spirostylis</i>	–	<i>Prostobuccantia broca</i>	–
<i>Urd viviparous</i>	#938 m, 940 m lat, 940 m d/v	<i>Turbanella ambronensis</i>	#1000 s, 998 s
		<i>Trb bocqueti</i>	#1010 s, 1018 s
		<i>Trb cornuta</i>	#1741 s, 1753 j
		<i>Trb hyalina</i>	#1376 m, 1371 j
		<i>Trb mustela</i>	–
		<i>Trb ocellata</i>	–
		<i>Trb subterranea</i>	#1139 m

Results and Discussion

Some 1450 or so video sequences have been collected over the past decade, representing 144 (39 %) of 372 of the world's described species of marine gastrotrichs. A set of about 200 sequences (Tables 1, 2) are made available for teachers, ecologists and research workers, making available a new class of resource for workers who otherwise have mainly text, drawings and photos for their use. Most genera and families of Gastrotricha that inhabit marine environments are being included, along with the revised July 2004 "Global Data Base for Marine Gastrotricha". Others will be included as they become available. While it

may have been technically possible to do this a few years ago, it was not then feasible. The images may be accessed over the web using an IP address: <http://132.235.243.28> or a Server name: <http://hummon-nas.biosci.ohiou.edu>. All video formats have the same duration in minutes, but differ in size and resolution, so that the one to be downloaded depends on the space capacity of one's hard drive and the resolution desired. WMV or RM^{v.8} may be downloaded for use as "thumbnails", accessing MPEG-2 for those species where higher resolution is desired. Readers for all three formats also may be downloaded from the site. Contents of the Snap Server will be updated periodically as additional information is avail-

Table 2. Sequences of Gastrotricha Chaetonotida already converted in digital format, 37 are presently on the server, with 19 yet to do. Abbreviations: m = mature, s = subadult, j = juvenile, c&c = caudum only, lat = lateral view, d/v = dorsoventral view.

Chaetonotida – 56 spp.			
Taxon	Video-data	Taxon	Video-data
Neodasyidae – 3 spp.			
<i>Neodasys chaetonotoideus</i>	#1758 m, 1748 c&c	<i>Halichaetonotus aculifer</i>	#1383 m, 556 j
<i>Ned ciritus</i>	–	<i>Hlc bataceus</i>	–
<i>Ned uchidai</i>	–	<i>Hlc batillifer</i>	#1821 m
		<i>Hlc clavicornis</i>	#1379 m
		<i>Hlc decipiens</i>	#566 m
		<i>Hlc etrolomus</i>	#572 s
		<i>Hlc jucundus</i>	#538 m
		<i>Hlc margaretae</i>	#1871 m
		<i>Hlc marivagus</i>	–
		<i>Hlc paradoxus</i>	#583 m
		<i>Hlc pleuracanthus</i>	–
		<i>Hlc spinosus</i>	#610 m, 611 m
		<i>Hlc testiculophorus</i>	–
		<i>Hlc thalassopais</i>	#623 j
		<i>Heterolepidoderma clipeatum</i>	#1874 m
		<i>Hlp istriatum</i>	#348 m
		<i>Hlp loricatum</i>	#354 m
Chaetonotidae – 40 spp.			
<i>Aspidiophorus mediterraneus</i>	#1347 m		
<i>Asp multitubulatus</i>	–		
<i>Asp paramediterraneus</i>	#336 m		
<i>Asp polystictos</i>	#317 m		
<i>Asp tentaculatus</i>	#1908 m		
<i>Chaetonotus aegilonensis</i>	#409 m, 492 m		
<i>Cht apechochaetus</i>	#1386 m		
<i>Cht apolemmus</i>	#426 m		
<i>Cht atrox</i>	#439 m		
<i>Cht dispar</i>	#447 m		
<i>Cht jucundus</i>	–		
<i>Cht lacunosus</i>	#1875 m		
<i>Cht luporinii</i>	#1919 m		
<i>Cht magnificus</i>	–		
<i>Cht mariae</i>	#467 m		
<i>Cht maximus</i>	–		
<i>Cht mediterraneus</i>	–		
<i>Cht napoleonicus</i>	–		
<i>Cht neptuni</i>	#474 m		
<i>Cht sagittarius</i>	#65 m		
<i>Cht triacanthus</i>	#63 m		
<i>Cht somniculosus</i>	–		
<i>Cht variosquamatus</i>	#550 m		
		Xenotrichulidae – 13 spp.	
		<i>Draculiciteria tessellata</i>	#626 m
		<i>Heteroxenotrichula affinis</i>	–
		<i>Hxn pygmaea</i>	#635 m
		<i>Hxn squamosa</i>	#1736 m
		<i>Hxn subterranea</i>	#639 m, 640 j
		<i>Hxn texana</i>	#296 m
		<i>Xenotrichula carolinensis</i>	–
		<i>Xnt guadelupense</i>	–
		<i>Xnt intermedia</i>	#682 m
		<i>Xnt lineata</i>	–
		<i>Xnt punctata</i>	#699 m
		<i>Xnt tentaculata</i>	–
		<i>Xnt velox</i>	–

able and new species are described. Ultimately, variability within and between geographical areas also may be provided.

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