

## Lichens from the Dominican Republic collected in 2008

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**Abstract:** As the result of a study visit in 2008 to the north of the Dominican Republic, 175 lichen species are recorded, including the rarely reported *Bulbothrix bulbillosa*, *Chapsa rubropulveracea*, *Coenogonium kalbii*, *Cratiria americana*, *Graphis immersella* and *Megalaria granulosa*. A new *Porina* species, *P. tomentosa*, is described. Some notes on ecology, morphology and literature are added.

**Zusammenfassung:** Als Ergebnis einer Studienreise im Jahr 2008 im Norden der Dominikanischen Republik wurden 175 Flechtenarten erfasst, darunter die selten berichteten *Bulbothrix bulbillosa*, *Chapsa rubropulveracea*, *Coenogonium kalbii*, *Cratiria americana*, *Graphis immersella* und *Megalaria granulosa*. Eine neue *Porina* Art, *P. tomentosa*, wird beschrieben. Einige Hinweise zur Ökologie, Morphologie und Literatur werden gegeben.

The Dominican Republic is a part of the West Indies (Greater Antilles) and is situated in the Caribbean. Together with Haiti, it forms the island of Hispaniola (the eastern part) and is 48442 km<sup>2</sup> in size. The Caribbean Sea borders the southern side of the island and the Atlantic Ocean the northern side. Pico Duarte is the highest point, situated in the Cordillera Central and reaching 3185 meters in altitude. The island has a tropical climate with annual temperatures between 28 and 33 °C (ETAYO & VAN DEN BOOM 2013).

Lichens have been recorded only scarcely from the Dominican Republic. We did not find any special publication on lichens from the country and the internet checklist of lichens presents only twenty species from the Dominican Republic (FEUERER 2014). However, the *Cladoniaceae* monograph of AHTI (2000) cites numerous specimens from the country, suggesting the presence of a rich, but understudied lichen flora.

In 2008 the first author and his wife visited the northern part of the country and collected lichens and lichenicolous fungi. As a result 16 lichenicolous fungi have been published already (ETAYO & VAN DEN BOOM 2013), including the newly described

*Xenonectriella dirinariae* ETAYO & VAN DEN BOOM. A further result is published below, an annotated list of 175 lichen species collected in the Dominican Republic. Many seem to be newly recorded from the country, but the absence of a thorough checklist leaves uncertainty about their status. From the rarely reported *Bulbothrix bulbilosa*, *Chapsa rubropulveracea*, *Coenogonium kalbii*, *Cratiria americana*, *Graphis immersella* and *Megalaria granulosa*, photographs are provided (Fig. 2).

### Materials and methods

All specimens have been studied by conventional macro- and microscopical techniques with hand-cut sections of the material mounted in water. Spore sizes were measured in water. All localities are provided with geographical coordinates based on GPS. The identifications are based on recent descriptions and keys for, e.g., *Buellia* s. l. (MARBACH 2000), *Coccocarpia* (LÜCKING & al. 2007), *Coenogonium* (RIVAS PLATA & al. 2006), *Diorygma* (KALB & al. 2004), foliicolous lichens (LÜCKING 2008), *Graphidaceae* (STAIGER 2002), *Graphis* (ARCHER 2006; LÜCKING & al. 2008, 2009; STAIGER 2002), *Gyalideopsis* (LÜCKING & al. 2006), *Haematomma* (BRODO & al. 2008), *Herpothallon* (APTROOT & al. 2009), *Lecanora* (GUDERLEY 1999), *Physcia* (MOBERG 1990), pyrenocarpous lichens (APTROOT & al. 2008), *Pyrenula* (APTROOT 2012). Amyloid reactions were tested using Lugol's iodine solution (K/I). The secondary metabolites of several specimens were analysed by TLC using the methods of CULBERSON & AMMANN (1979) and CULBERSON & JOHNSON (1982). The first author visited B several times in relation with this study. Specimens are kept in the herbarium of P. VAN DEN BOOM, some duplicates are in B (indicated with (B)). Several specimens have been checked by specialists, see acknowledgement.

### The new species

*Porina tomentosa* VAN DEN BOOM & SIPMAN, spec. nova (Fig. 1)

Mycobank MB 810927

**Diagnosis:** A *Porina* species related to *P. nucula* ACH., but differing in a very thin thallus, perithecia being (0.2–)0.3–0.5 mm, densely tomentose with white to pale grey tomentum, ascospores (9–)11(–12)–septate, (75–)80–85(–88) × (18–)20(–21) µm.

**Typus:** Dominican Republic, Prov. Puerto Plata, W of Puerto Plata, NW of Cabarete, along the road (W side) to Punta Goleta, coastal area, damp forest with mainly almond (*Terminalia catappa*) trees, 19° 45.28' N, 70° 25.08' W, 20 m. s. m., 28. 1. 2008, leg. P. & B. VAN DEN BOOM 38966 (holotype in B; isotype in hb. VAN DEN BOOM)

### Description:

**Thallus:** crustose, epiphloeodal to immersed, c. 1–2 cm wide, determinate, continuous to very sparingly rimose, pale greyish brown, smooth, somewhat shiny, to 50–150 µm thick, ecorticate; prothallus not apparent; basal layer absent.

**Algae:** *Trentepohlia*; cells globose, 5–10 µm in diam.

**Ascomata:** perithecia, immersed or semi-immersed to (mostly) almost superficial, becoming hemispherical, usually solitary, (0.2–)0.3–0.5 in diam., greyish or pale yellowish brown, sometimes around the ostiole pale reddish brown, but the lower parts often remaining covered by the thallus at maturity; apex rounded; from apex to the base mostly densely covered by a fine whitish to pale grey tomentum; tomentum

hyaline, hyphae  $10\text{--}25 \times 3\text{--}4.5 \mu\text{m}$ , not cellular; ostiole small, inconspicuous or in a slightly shallow c.  $20\text{--}30 \mu\text{m}$  in diam. depression.

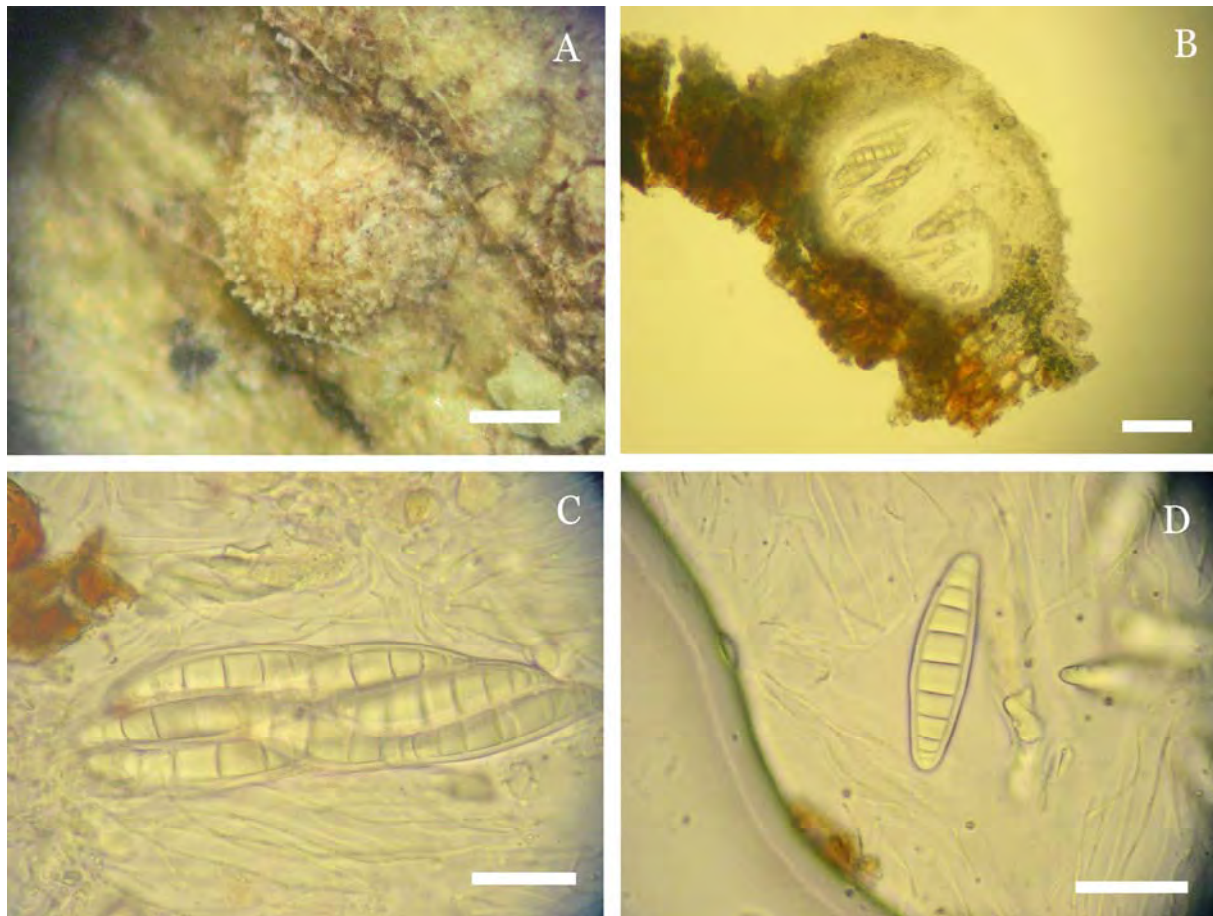


Fig. 1. *Porina tomentosa* (vdB 38966). *A* Tomentose perithecium. *B* Section through a perithecium. *C* Ascus with 8 ascospores. *D* Ascospore. Bars *A* 0.2 mm, *B* 100  $\mu\text{m}$ , *C*, *D* 40  $\mu\text{m}$

**Involucrum**: extending to mid-way down the sides of the excipulum or almost to the base, outer layers hyaline to pale yellowish brownish, c.  $50 \mu\text{m}$  thick above, to  $90 \mu\text{m}$  lateral, K–, photobiont cells occupy the lower part of the involucrellum, crystals absent.

**Excipulum**: c.  $10\text{--}15 \mu\text{m}$  thick at the base to  $25 \mu\text{m}$  at the sides of the centrum, hyaline, the outer layers hyaline to very pale brownish. Paraphyses unbranched,  $(0.8\text{--})1\text{--}(1.5) \mu\text{m}$  thick. Periphyses absent.

**Asci**: 8-spored, elongate-fusiform, with a rounded apex,  $165\text{--}175 \times 45\text{--}55 \mu\text{m}$ .

**Ascospores**: broadly fusiform to elongate ellipsoid, usually straight or slightly curved, occasionally slightly sigmoidal, overlapping in the ascus, hyaline,  $(9\text{--})11\text{--}(12)\text{--}12$ -septate,  $(75\text{--})80\text{--}85\text{--}(88) \times (18\text{--})20\text{--}(21) \mu\text{m}$ , thick walled, wall c.  $2.5\text{--}3.5 \mu\text{m}$ , no perispore observed; apices rounded; contents usually clear, not guttulate.

**Conidiomata**: not seen.

**Chemistry**: no substances detected.

**Etymology:** The perithecia of the new species are finely tomentose.

**Distribution and habitat:** *Porina tomentosa* is only known from the type locality where it was found together with *Bacidia medialis*, *Bacidina chlorotricula*, *Chapsa rubropulveracea* and *Malmidea fuscilla*. It is easily overlooked because of the same colour as the phorophyte, thus without contrast. It is also a rather small species with a very thin thallus. The tomentum on the perithecia and the bigger ascospores separate the new species easily from *Porina nucula*. This latter species has been collected on five localities during this survey (see below) so it seems to be a common species in the study area.

**Discussion:** This new species is easily recognized by the tomentose relative small perithecia with somewhat the same colour as the thallus. Several perithecia have been found clearly immersed in the thallus and thus hardly visible, so it is likely that the new species is very easily overlooked.

In the field it can be easily overlooked for *Porina nucula* which has somewhat the same colour, but the ascospores are always 7-septate and  $40\text{--}55 \times 10\text{--}12 \mu\text{m}$ , with a  $3 \mu\text{m}$  thick perispore. Only one species with tomentum on the perithecia is known and recently described by SÉRUSIAUX & al. (2007), *Porina effilata* BRAND & SÉRUS. This species has also tomentum on the perithecia, but only on their upper half. The perithecia are also small,  $0.3\text{--}0.45\text{--}(0.5) \text{mm}$  and sometimes immersed. However the ascospores are narrowly fusiform and slightly but distinctly inflated in the upper half and tapering towards the proximal, with a thin but distinct perispore, none of these characters occur in *P. tomentosa*. A further corticolous or saxicolous, tropical and subtropical species is *Porina mastoidea*, rather common in Central and South America, which can be confused with the new species. Material of this latter species was also collected for this study. It has a moderately thick thallus and large perithecial verrucae, ascospores of c.  $50 \times 9 \mu\text{m}$  and 7-septate. A tomentum is not known from this species (MCCARTHY 1993).

### The annotated species list

The list below presents 175 species, observed by the first author. The locality numbers after the species name correspond with the list of localities below. They are followed by the collection numbers of the voucher (herbarium van den Boom) and an abbreviation for the substrate.

#### Substrate abbreviations:

<i>Am</i> Almond	<i>Fi</i> <i>Ficus</i>	<i>bfb</i> bark fallen branch
<i>Ap</i> <i>Apollonias</i>	<i>Hur</i> <i>Hura</i>	<i>dst</i> dead standing tree
<i>Bau</i> <i>Bauhinia</i>	<i>In</i> <i>Inga edulis</i>	<i>le</i> leaf
<i>Cc</i> Cocoa	<i>Man</i> <i>Rhizophora mangle</i>	<i>s</i> acidic rock
<i>Cf</i> <i>Coffea</i>	<i>Mg</i> Mango	<i>sw</i> stone of wall
<i>Chr</i> <i>Chrysophyllum</i>	<i>Mi</i> <i>Mimosaceae</i>	<i>t</i> terricolous
<i>Ci</i> <i>Citrus</i>	<i>Pm</i> Palm	<i>ush</i> unidentified shrub
<i>Coc</i> <i>Coccoloba uvifera</i>	<i>Pn</i> <i>Pinus</i>	<i>ut</i> unidentified tree
<i>Csi</i> <i>Cassia</i>	<i>Sp</i> <i>Spathodea</i>	<i>wp</i> wood fence post
<i>Er</i> <i>Erica</i>	<i>Tn</i> <i>Terminalia catappa</i>	

## The species list

### ***Agonimia pacifica* (H. HARADA) DIEDERICH**

Loc. 3, B39223, Pm

### ***Anema nummularium* (DUF. EX DUR. & MONT.) NYL. ex FORSS.**

Loc. 16, B39529, sw

### ***Anisomeridium subprostans* (NYL.) R. C. HARRIS**

Loc. 8, B39231, ut

### ***Arthonia ilicina* T. TAYLOR**

Loc. 10, B39308, Mi

### ***Arthonia antillarum* (FÉE) NYL.**

Loc. 8, B39264, Pm

### ***Asterothyrium tetraspora* LÜCKING**

Loc. 14, B39583, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Brazil, but not from the Dominican Republic.

### ***Bacidia campalea* (TUCK.) S. EKMAN & KALB**

Loc. 12, B39458, bfb; 15, B39476, Bau

### ***Bacidia medialis* (TUCK. ex NYL.) DE LESD.**

Loc. 1, B38918, 38930, 38934, 38954, Coc, Pm, ut; 2, B38968, 38988, Am, ut; 4, B39126, Cc; 5, B39155, Cc; 8, B39219, 39262, 39282, Man, Pm; 10, B39562, wp; 14, B39374, Cc; 15, B39472, 39503, Bau, Mg; 17, B39532, 39540, 39547, Tn, ut

### ***Bacidia russeola* (KREMP.) ZAHLBR.**

Loc 4, B39119, 39128, Cc, wp; 5, B39135, wp

### ***Bacidina chlorotricula* (NYL.) VĚZDA & POELT**

Loc. 2, B38967, ut; 6, B39169, Cf – The latter specimen has ascospores of c. 2.5 µm wide but the other features fit well.

### ***Bactrospora myriadea* (FÉE) EGEA & TORRENTE**

Loc. 1, B39577, Pm; 8, B39233, 39263, ut, Pm; 17, B39534, ut – Recorded for the country by EGEA & TORRENTE (1993).

### ***Brigantiaea leucoxantha* (SPRENG.) R. SANT. & HAFELLNER**

Loc. 3, B39013, ut

### ***Buellia bahiana* MALME**

Loc. 14, B39452, ut – This species is widely distributed in the Neotropics but not recorded from the Dominican Republic (MARBACH 2000).

### ***Bulbothrix bulbillosa* BENATTI, SPIELMANN & BUNGARTZ (Fig. 2 a)**

Loc. 6, B39196, ut – Recently described as new by BUNGARTZ & al. (2013) from the Galapagos Islands. First record outside that archipelago.

### ***Byssoloma leucoblepharum* (NYL.) R. SANT.**

Loc. 5, B39137, Csi

### ***Byssoloma subdiscordans* (NYL.) P. JAMES**

Loc. 3, B39054, ush; 3, B39098, le; 15, B39516, le – Recorded by LÜCKING (2008) from the Neotropics, from USA to Bolivia, including the Dominican Republic.

### ***Calopadia fusca* (MÜLL. ARG.) VĚZDA**

Loc. 14, B39389, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Argentina, but not from the Dominican Republic.

***Calopadia perpallida* (NYL.) VĚZDA**

Loc. 5, B39154, Cc; 12, B39469, ut; 12, B39361, Cf; 12, B39438, Ci; 14, B39380, Cc

***Calopadia phyllogena* (MÜLL. ARG.) VĚZDA**

Loc. 14, B39391, 39406, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Brazil, but not from the Dominican Republic.

***Calopadia subcoerulescens* (Z AHLBR.) VĚZDA**

Loc. 5, B39132, Csi; 15, B39512, wp

***Calopadia subfusca* KALB & VĚZDA**

Loc. 3, B39053, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Brazil, but not from the Dominican Republic.

***Calopadia puiggarii* (MÜLL. ARG.) VĚZDA**

Loc. 14, B39376, le; 15, B39484, Chr; 15, B39501, Mg – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Argentina, but not from the Dominican Republic.

***Candelaria concolor* (DICKS.) B. STEIN**

Loc. 6, B39195, ut

***Canoparmelia crozalsiana* (DE LESD.) ELIX & HALE.**

Loc. 7, B39205, ut

***Canoparmelia cryptochlorophaea* (HALE) ELIX & HALE.**

Loc. 7, B39204, Am; 14 B39375, Pm

***Canoparmelia martinicana* (NYL.) ELIX & HALE**

Loc. 1, B38950, Mg; 1 B38952, Am

***Chapsa paralbida* (RIDDLE) RIVAS PLATA & LÜCKING**

Loc. 8, B39250, Man

***Chapsa rubropulveracea* HALE EX MANGOLD, LÜCKING & LUMBSCH (Fig. 2 b)**

Loc. 2, B38971, ut (B) – Recorded by LUMBSCH & al. (2011) from Dominica. It was only known from the type locality.

***Chapsa thalotrema* N. SALAZAR & LÜCKING**

Loc. 3, B39083, ut

***Cladonia cartilaginea* MÜLL. ARG.**

Loc. 15, B39517, s – Already known from higher altitudes in the country (AHTI 2000).

***Cladonia didyma* (FÉE) VAIN.**

Loc. 3, B39042, Pn – Several specimens are recorded by AHTI (2000) for the country.

***Coccocarpia palmicola* (SPRENG.) ARVIDSS. & D. J. GALLOWAY**

Loc. 3, B39038, 39091, Pm

***Coccocarpia pellita* (ACH.) MÜLL. ARG.**

Loc. 3, B39075, ut

***Coccocarpia prostrata* LÜCKING, APTROOT & SIPMAN**

Loc. 3, B39065, Pm – Recorded by LÜCKING & al. (2007) from Independencia and La Vega.

***Coenogonium fallaciosum* (MÜLL. ARG.) KALB & LÜCKING**

Loc. 2, B38962, 38994, 38995, Am

***Coenogonium kalbii* APTROOT, LÜCKING & UMAÑA (Fig. 2 c)**

Loc. 2, B38979, Am – Previously only known from Costa Rica (RIVAS PLATA &

al. 2006)

***Coenogonium linkii* EHRENB.**

Loc. 3, B39030, ut

***Coenogonium moniliforme* TUCK.**

Loc. 6, B39191, ut

***Coenogonium nepalense* (G. THOR & VĚZDA) LÜCKING, APTROOT & SIPMAN**

Loc. 1, B38953, Coc; 12, B39357, Cf; 12, B39467, ut; 15, B39480, Chr

***Coenogonium persistens* (MALME) LÜCKING, APTROOT & SIPMAN**

Loc. 12, B39443, ut

***Coenogonium pineti* (ACH.) LÜCKING & LUMBSCH**

Loc. 3, B39073, ut; 8, B39261, Pm

***Coenogonium subdentatum* (VĚZDA & G. THOR) RIVAS PLATA, LÜCKING, UMAÑA**

Loc. 3, B39103, ut; 6, B39167, Cf

***Coenogonium subluteum* (REHM) KALB & LÜCKING**

Loc. 14, B39386, Cf; 14, B39586, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Brazil, but not from the Dominican Republic.

***Collema pulcellum* (Ach.) var. *subnigrescens* (MÜLL. ARG.) DEGEL.**

Loc. 10, B39310, Csi

***Cratiria americana* (FÉE) MARBACH & KALB (Fig. 2 d)**

Loc. 4, B39112, Cc; 7, B39210, ut – In the Neotropics it is a rather rare species and known from Mexico, El Salvador and Brazil (MARBACH 2000) and Panama (VAN DEN BOOM & al. 2013).

***Cratiria lauricassiae* (FÉE) MARBACH**

Loc. 1, B38909, 38910, Pm; 6, B39163, ut; 10, B39314, ut; 12, B39344, bfb; 14, B39402, Ci; 15, B39479, Man

***Cryptolechia myriadella* (NYL.) D. HAWKSW. & DIBBEN**

Loc. 4, B39116, Cc

***Dichosporidium nigrocinctum* (EHRENB.) G. THOR**

Loc. 3, B39031, 39032, 39059, Pm, Sp, ut

***Diorygma epiglaucum* (MÜLL. ARG.) KALB, STAIGER & ELIX**

Loc. 9, B39568, wp

***Diorygma hieroglyphicum* (PERS.) STAIGER & KALB**

Loc. 5, B39139 Csi; 9, B39301, wp; 11, B39323, ut; B39316, c; 12, B39354, Cf

***Diorygma intermedium* KALB, STAIGER & ELIX**

Loc. 8, B39225, 39253, ut, Man – Recorded from Puerto Rico by KALB & al. (2004), but not from the Dominican Republic.

***Diorygma poitaei* (FÉE) KALB, STAIGER & ELIX**

Loc. 3, B39048, 39082, ut; 4, B39118, Cc; 5, B39136, 39142, Cc, Csi (B); 9, B39297, wp; 12, B39418, 39576, Cf; 12, B39439, Ci; 13, B39364, wp – Recorded from several countries in the West Indies by KALB & al. (2004), but not from the Dominican Republic.

***Diorygma pruinosum* (ESCHW.) KALB, STAIGER & ELIX**

Loc. 8, B39230, 39288, ut; 9, B39295, wp; 12, B39351, wp – Recorded from the Neotropics (Brazil) by KALB & al. (2004), but not from the Dominican Republic.

***Dirinaria applanata* (FÉE) D. D. AWASTHI**

Loc. 15, B39478, Bau

***Dyplolabia afzelii* (ACH.) A. MASSAL.**

Loc. 1, B38911, Pm; 8, B39280, bfb; 9, B39296, 39569, wp; 17, B39556, Mi – Recorded by STAIGER (2002) from the Dominican Republic.

***Enterographa compunctula* (NYL.) REDINGER**

Loc. 8, B39212, Man

***Enterographa quassiaecola* FÉE**

Loc. 8, B39234, ut

***Eugeniella wettsteinii* (MÜLL. ARG.) LÜCKING, SÉRUS. & KALB**

Loc. 15, B39510, wp

***Fellhanera bouteillei* (DESM.) VĚZDA**

Loc. 14, B39382, 39409, Ci – Recorded by LÜCKING (2008) from the Neotropics, from the USA to Argentina, but not from the Dominican Republic.

***Flakea papillata* O. E. ERIKSS.**

Loc. 6, B39168, Cf; 8, B39277, Fi

***Gassicurtia catasema* (TUCK.) MARBACH**

Loc. 14, B39451, Pm – Recorded by MARBACH (2000) from the Neotropics, from the USA to Brazil, but not from the Dominican Republic.

***Glyphis cicatricosa* ACH.**

Loc. 1, B38939, Pm; 6, B39193, Csi; 15, B39474, Bau; 17, B39541, ut – Recorded by STAIGER (2002) from the Dominican Republic.

***Glyphis scyphulifera* (ACH.) NYL.**

Loc. 6, B39175, Csi – Recorded by STAIGER (2002) from the Dominican Republic.

***Graphis acharii* (FÉE) MÜLL. ARG.**

Loc. 3, B39028, ut

***Graphis angustata* ESCHW.**

Loc. 9, B39463, wp

***Graphis bettinae* LÜCKING, UMAÑA, CHAVES & SIPMAN**

Loc. 5, B39156, Cc

***Graphis dendrogramma* NYL.**

Loc. 2, B38947, Am; 8, B39245, Coc; 10, B39307, wp; 17, B39530, ut

***Graphis furcata* FÉE**

Loc. 1, B38935, ut; 2, B39009, Am

***Graphis glaucescens* FÉE**

Loc. 5, B39147, Cc

***Graphis immersella* MÜLL. ARG. (Fig. 2 e)**

Loc. 1, B38925, Pm (B) – This species is keyed out in ARCHER (2006) and LÜCKING & al. (2009). The specimen fits well with the description in ARCHER (2006) and we have found stictic acid by TLC.

***Graphis lapidicola* FÉE**

Loc. 12, B39346, 39360, wp

***Graphis lineola* ACH.**

Loc. 4, B39121, Cc; 10, B39312, wp; 13, B39362, wp

***Graphis miniata* REDINGER**

Loc. 9, B39272, wp

***Graphis marginata* RADDI.**

Loc. 9, B39300, wp



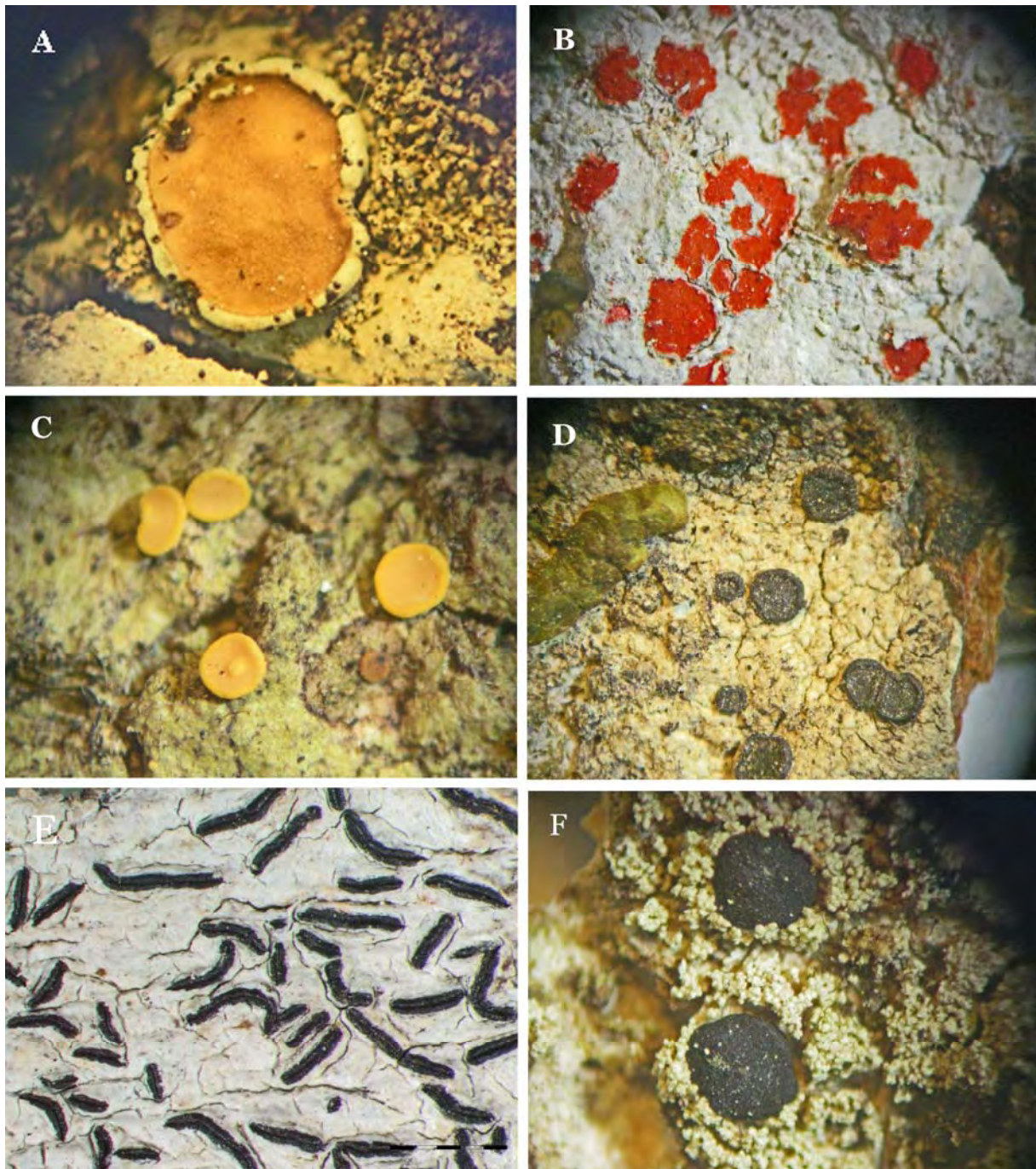


Fig. 2. Lichen habits. A *Bulbothrix bulbilosa* (vdB 39196). B *Chapsa rubropulveracea* (vdB 38971). C *Coenogonium kalbii* (vdB 38979). D *Cratiria americana* (vdB 39210). E *Graphis immersella* (vdB 38925). F *Megalaria granulosa* (vdB39453).

***Graphis rhizocola* (FÉE) LÜCKING & CHAVES**

Loc. 9, B39292, wp

***Graphis subchrysocarpa* LÜCKING**

Loc. 9, B39570, wp

***Graphis tenoriensis* LÜCKING & CHAVES**

Loc. 3, B39023, ut

***Gyalideopsis* aff. *confluens* KALB & VĚZDA**

Loc. 11, B39322, Am – Our specimen has 2 muriforme ascospores per ascus of  $40\text{--}50 \times 20\text{--}23 \mu\text{m}$ . This is somewhat wider as mentioned in LÜCKING & al.

(2006), 12–20 µm wide. The margins of the apothecia are rather reduced.

***Haematomma persoonii* (FÉE) A. MASSAL.**

Loc. 12, B39345, wp

***Helminthocarpon leprevostii* FÉE**

Loc. 8, B39220, Man

***Herpothallon antillarum* (VAINIO) APTROOT, LÜCKING & G. THOR**

Loc. 14, B39377, Cc – Recorded from the West Indies by APTROOT & al. (2009), but not from the Dominican Republic.

***Herpothallon roseocinctum* (FR.) APTROOT, LÜCKING & G. THOR**

Loc. 3, B39058, Pm – Recorded from the West Indies by APTROOT & al. (2009), but not from the Dominican Republic.

***Herpothallon rubrocinctum* (EHRENB.: FR.) APTROOT, LÜCKING & G. THOR**

Loc. 3, B39058a, Pm – The material is present in the specimen of *H. roseocinctum*. Recorded from the West Indies by APTROOT & al. (2009), but not from the Dominican Republic.

***Heterodermia albicans* (PERS.) SWINSCOW & KROG**

Loc. 1, B38951, Am; 6, B38173, 39186, ut; 12, B39338, 39573, ut; 14, B39369, Cc

***Heterodermia leucomelos* (L.) POELT**

Loc. 3, B39071, 39100, ut

***Heterodermia obscurata* (NYL.) TREVISAN**

Loc. 6, B39185, ut

***Hyperphyscia pandani* (H. MAGN.) MOBERG**

Loc. 1, B38922, Pm; 8, B39265, Pm

***Laurera megasperma* (MONT.) ZAHLBR.**

Loc. 9, B39305, Cc

***Lecanora symmicta* (ACH.) ACH.**

Loc. 15, B39525, ut

***Lecanora tropica* ZAHLBR.**

Loc. 7, B39209, ut – Recorded by GUDERLEY (1999) from Independencia.

***Leptogium austroamericanum* (MALME) C. W. DODGE**

Loc. 12, B39461, bfb

***Leptogium azureum* (SW.) MONT.**

Loc. 3, B39078, ut

***Leptogium cyanescens* (RABENH.) KÖRB.**

Loc. 1, B38919, Pm; 15, B39500, Man

***Leptogium marginellum* (SW.) S. F. GRAY**

Loc. 5, B39144, Cc

***Leptogium punctulatum* NYL.**

Loc. 8, B39238, Man

***Malmidea fuscella* (MÜLL. ARG.) KALB & LÜCKING**

Loc. 2, B38955, 38992, Am, ut; 3, B39110, ush; 4, B39113, Cc; 5, B39150, Cc; 5, B39003, ut; 11, B39329, 39330, Mi; 12, B39359, Cf; 15, B39499, Mg; 17, B39533, ut

***Malmidea gyalectoides* (VAIN.) KALB & LÜCKING**

Loc. 4, B39114, Cc

***Malmidea leptoloma* (MÜLL. ARG.) KALB & LÜCKING**

Loc. 11, B39331, Mi; 11, B39335, Hur

***Malmidea piperis* (SPRENG.) KALB, RIVAS PLATA & LUMBSCH**

Loc 2, B38961, 38983, Am; 9, B39304, Cc; 11, B39320, Am; 12, B39353, Cf

***Malmidea psychotrioides* (KALB & LÜCKING) KALB, RIVAS PLATA & LUMBSCH**

Loc. 2, B38978, Am; 11, B39319, Am; 12, B39340, ut; 15, B39498 Man; 15, B39487, 39508, In

***Malmidea vinosa* (ESCHW.) KALB, RIVAS PLATA & LUMBSCH**

Loc. 2, B39010, Am; 11, B39325, Mi; 12, B39336, 39423, 39442, 39444, ut; 12, B39358, Cf; 14, B39368, Cc; 15, B39486, 39506, In; 15, B39497, Mg

***Mazosia ocellata* (NYL.) R. C. HARRIS**

Loc 2, B38985, Am; 8, B39242, Man

***Mazosia phyllosema* (NYL.) ZAHLBR.**

Loc. 14, B39582, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Paraguay, but not from the Dominican Republic.

***Megalaria granulosa* KALB (Fig. 2 f)**

Loc. 14, B39453, Man; Loc. 15, B39509, Chr (B) – Previously only known from the type locality in Cuba (KALB 2007).

***Normandina pulchella* (BORR.) NYL.**

Loc. 3, B39017, ut

***Ocellularia depressa* (MONT.) HALE**

Loc 3, B39025, ut

***Opegrapha filicina* MONT.**

Loc. 14, B39416, le – Recorded by LÜCKING (2008) from the Neotropics, from many countries, including the Dominican Republic.

***Parmelinopsis mniarum* (VAIN.) ELIX & HALE**

Loc. 12, B39433, ut

***Parmotrema clavuliferum* (RÄSÄNEN) STREIMANN**

Loc. 3, B39050, Ci

***Parmotrema cristiferum* (TAYLOR) HALE**

Loc. 3, B39052, Ci

***Parmotrema endosulphureum* (HILLM.) HALE**

Loc. 3, B39080, ut; 5, B39143, Cc; 8, B39255, Man; 8, B39257, ut

***Parmotrema mellissii* (DODGE) HALE**

Loc. 3, B39040, Pn; 3, B39099, ush

***Parmotrema praesorediosum* (NYL.) HALE**

Loc. 6, B39180, ut; 8, B39061, ut

***Parmotrema reticulatum* (TAYLOR) M. CHOISY**

Loc. 12, B39465, bfb; 12, B39429, ut (cf.); 15, B39519, In

***Parmotrema sancti-angelii* (LYNGE) HALE**

Loc. 7, B39200, Csi; 12, B39426, ut

***Parmotrema subtinctorum* (ZAHLBR.) HALE**

Loc. 7, B39201, Csi; 12, B39561, Csi

***Parmotrema tinctorum* (NYL.) HALE**

Loc. 9, B39294, Ci; 12, B39417, ut; 15, B39492, dst

***Peltigera didactyla* (WITH.) J. R. LAUNDON**

Loc. 6, B39176, t

***Phaeographis brasiliensis* (A. MASSAL.) KALB & MATTHES-LEICHT.**

Loc. 8, B39574, ut – Recorded by STAIGER (2002) from the Dominican Republic.

***Phaeographis intricans* (NYL.) VAIN.**

Loc. 8, B39457, ut

***Phaeographis lecanographa* (NYL.) STAIGER**

Loc. 3, B39108, ush – Recorded by STAIGER (2002) from the Dominican Republic.

***Phaeographis lobata* (ESCHW.) MÜLL. ARG.**

Loc. 6, B39198, ut; 8, B39526, ut – Recorded by STAIGER (2002) from the Dominican Republic.

***Phaeographis scalpturata* (ACH.) STAIGER**

Loc. 5, B39148, Cc; 12, B39348, wp; 15, B39488, ut

***Phyllopsora breviscula* (NYL.) MÜLL. ARG.**

Loc. 15, B39511, wp

***Phyllopsora corallina* (ESCHW.) MÜLL. ARG. s.l.** – Several varieties are recorded by BRAKO (1991) from the Dominican Republic.

Loc. 12, B39342, 39471, ut

***Phyllopsora furfuracea* (PERS.) ZAHLBR.**

Loc. 3, B39012, Sp; 3, B39069, Pm; 3, B39074, ut – Many specimens are recorded by BRAKO (1991) from the Dominican Republic.

***Phyllopsora parvifolia* (PERS.) MÜLL. ARG.** – Many specimens are recorded by BRAKO (1991) from the Dominican Republic.

Loc. 7, B39206, ut; 14, B39373, Cc

***Physcia atrostriata* MOBERG**

Loc. 1, B38921, Pm; 12, B39337, ut; 15, B39505, ut; 17, B39536, 39549, Pm – Recorded by MOBERG (1990) from the Dominican Republic, from several localities.

***Physcia crispa* NYL.**

Loc. 4, B39122, Cc; 6, B39165, Cf; 7, B39211, Csi

***Physcia integrata* NYL.**

Loc. 4, B39127, Cc; 15, B39475, Bau

***Physcia sinuosa* MOBERG**

Loc. 1, B38941, Pm; 4, B39124, Csi; 8, B39281, 39239, bfb, Man

***Physcia sorediosa* (VAIN.) LYNGE**

Loc. 3, B39037, Pm; 4, B39115, Cc; 6, B39162, 39164, Csi; 7, B39203, Csi – Recorded by MOBERG (1990) from the Dominican Republic, from several localities.

***Platygramme caesiopruinosa* (FÉE) FÉE**

Loc. 15, B39482, ut – Recorded by STAIGER (2002) from the Dominican Republic.

***Platygramme colubrosa* (NYL.) STAIGER**

Loc. 9, B39302, Cc – The excipulum is laterally carbonized; a dark brown, but small brownish base is also visible. The ascospores are strongly muriform and 100–120 × 20–30 µm, pale brownish.

***Platythecium collicosum* (MONT.) STAIGER**

Loc. 3, B39105, ut

***Porina distans* VÉZDA & VIVANT**

Loc. 2, B38959, 39986, Am

***Porina eminentior* (NYL.) P. M. MCCARTHY**

Loc. 11, B39334, Hur

***Porina internigrans* (NYL.) MÜLL. ARG.**

Loc. 3, B39045, 39107, ut; 5, B39152, Cc

***Porina mastoidea* (ACH.) MÜLL. ARG.**

Loc. 14, B39384, Cf

***Porina nitidula* MÜLL. ARG.**

Loc. 14, B39408, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Argentina, but not from the Dominican Republic.

***Porina nucula* ACH.**

Loc. 2, B38960, 38991, 38996, Am; 3, B39560, ush; 11, B39318 ut; 12, B39355, Cc; 17, B39543, Tn. The specimen 39318 has somewhat different ascospores of 35–40 × 9–11 µm.

***Porina nuculastrum* (MÜLL. ARG.) R. C. HARRIS**

Loc. 8, B39285, Man

***Porina tetracerae* (AFZ. IN ACH.) MÜLL. ARG.**

Loc. 1, B38932, ut; 3, B39021, ut; 8, B39235, ut

***Psoroglaena costaricensis* HENSSEN**

Loc. 5, B39140, Cc

***Pyrenula breutelii* (MÜLL. ARG.) APTROOT**

Loc. 11, B39578, ut

***Pyrenula cerina* ESCHW.**

Loc. 8, B39217, Man

***Pyrenula confinis* (NYL.) R. C. HARRIS**

Loc. 1, B38913, Pm

***Pyrenula dermatodes* (BORRER) SCHAER**

Loc. 3, B39020, 39036, ut, Pm

***Pyrenula immissa* (STIRT.) ZAHLBR.**

Loc. 3, B39084, ut

***Pyrenula pyrenuloides* (MONT.) R. C. HARRIS**

Loc. 8, B39284, Man

***Pyrenula nitidula* (BRES.) R. C. HARRIS**

Loc. 11, B39326, Mi

***Pyrenula ochraceoflava* (NYL.) R. C. HARRIS**

Loc. 1, B38920, Pm

***Pyrenula thelomorpha* TUCK.**

Loc. 11, B39578, ut

***Pyrgillus javanicus* (MONT. & V. D. BOSCH) NYL.**

Loc. 3, B39106, ut

***Pyxine subcinerea* STIRT.**

Loc. 1, B38912, Pm; 8, B39286, Pm

***Ramalina aspera* RÄSÄNEN**

Loc. 15, B39522, bfb

***Ramalina celastri* (SPRENGEL) KROG & SWINSCOW**

Loc. 12, B39356, bfb

***Ramalina complanata* (SW.) ACH.**

Loc. 4, B39120, wp; 10, B39317, Csi; 17, B39538, Pm

***Ramonia cupellina* VĚZDA**

Loc. 2, B38972, 39005, ut, Am

***Sarcographa labyrinthica* (ACH.) MÜLL. ARG.**

Loc. 5, B39159, Cc; 8, B39252, Man; 9, B39571, Cc

***Sporopodium citrinum* (Z AHLBR.) ELIX, LUMBSCH & LÜCKING**

Loc. 3, B39051, Ci

***Sporopodium leprieurii* MONT.**

Loc. 3, B39051a, Ci

***Stigmatochroma gerontoides* (STIRTON) MARBACH**

Loc. 14, B39450, ut; 15, B39502, bfb – Recorded by MARBACH (2000) from the West Indies, but not from the Dominica Republic.

***Strigula maculata* (COOKE & MASSEE) R. SANT.**

Loc. 14, B39405, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Paraguay, but not from the Dominican Republic.

***Strigula nemathora* MONT.**

Loc. 14, B39388, 39395, 39398, 39403, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Argentina, but not from the Dominican Republic.

***Strigula nitidula* MONT.**

Loc. 14, B39397, 39399, 39581, le – Recorded by LÜCKING (2008) from the Neotropics, from Mexico to Argentina, but not from the Dominican Republic.

***Syncesia glyphysoides* (FÉE) TEHLER**

Loc. 8, B39241, Man

***Tapellaria epiphylla* (MÜLL. ARG.) R. SANT.**

Loc. 3, B39055, le – Recorded by LÜCKING (2008) from the Neotropics, from many countries, but not from the Dominican Republic.

***Thelotrema diplotrema* NYL.**

Loc. 3, B39057, Pm

***Trypethelium marcidum* (FÉE) APTROOT**

Loc. 5, B39157, Cc; 8, B39278, Man

***Trypethelium nitidiusculum* (NYL.) R. C. HARRIS**

Loc. 8, B39243, Coc

***Trypethelium variolosum* ACH.**

Loc. 5, B39134, Csi; 8, B39254, Man; 12, B39447, Csi

***Trypethelium platystomum* MONT.**

Loc. 1, B38914, Pm

***Tylophoron moderatum* NYL.**

Loc. 12, B39429, ut

***Xanthomendoza weberi* (S. KONDR. & KÄRNEFELT) L. LINDBLOM**

Loc. 6, B39160, Csi

**Collecting sites****Puerto Plata**

1 = E of Puerto Plata, Cabarete, coastal area, center of village, parking place and garden, with mixed trees and some mature palm trees. 70° 24.62' W - 19° 45.06' N, 5 m s. m., 27. January 2008.

2 = W of Puerto Plata, NW of Cabarete, along road (W side) to Punta Goleta, coastal area, damp forest with mainly almond (*Terminalia catappa*) trees. 70° 25.08' W - 19° 45.28' N, 20 m s. m., 28. January 2008.

3 = S of Puerto Plata, National Park 'Isabel de Torres', Pico Isabel de Torre, botanical garden with damp and open forest with mixed trees and shrubs. 70° 42.68' W - 19° 45.73' N, 770 m s. m., 29. January 2008.

#### Salcedo

4 = NW of San Francisco de Macoris, N of road between Salcedo and Tenares, Ojo de Aqua (N), along road and cocoa plantation, with small trees as fence post. 70° 23.31' W - 19° 22.93' N, 200 m s. m., 30. January 2008.

5 = NW of San Francisco de Macoris, W of road from Tenares to Gaspar Hernández, halfway to Las Cacaos, cocoa plantation from Altigracia Vargas, with small trees as fence post. 70° 21.22' W - 19° 25.80' N, 360 m s. m., 30. January 2008.

#### Santiago

6 = SW of Santiago de los Caballeros, National Park 'José Armando Bermudez', S of San José de las Matas, unpaved road (to Mata Grande), just S of Los Monotones, coffee plantation with some scattered rather high trees. 70° 55.76' W - 19° 14.57' N, 800 m s. m., 31. January 2008.

7 = SW of Santiago de los Caballeros, National Park 'José Armando Bermudez', S of San José de las Matas, unpaved road c. 1 km S of Los Monotones, roadside trees near village. 70° 55.75' W - 19° 13.88' N, 830 m s. m., 31. January 2008.

#### Españat

8 = E of Puerto Plata, Rio San Juan, just near village, Laguna Grí Grí, mangrove (swamp) forest with palm trees and unidentified small trees. 70° 04.45' W - 19° 38.15' N, 1 m s. m., 1. February 2008.

#### Duarte

9 = ESE of San Francisco de Macoris, c. 1 km W of Las Taranas, along road (132) from Castillo to Nagua, trail among fields and cocoa plantation with a few scattered houses. 69° 57.22' W - 19° 11.47' N, 75 m s. m., 2. February 2008.

#### Maria Trinidad Sánchez

10 = E of Puerto Plata, E of Río San Juan, area N of Loma Siseviera, S edge of National Park 'Cabo Frances Viejo', small unpaved 'road' with fields and many fence posts. 69° 59.97' W - 19° 39.45' N, 160 m s. m., 2. February 2008.

#### Santiago

11 = NE of Santiago de los Caballeros, N of La Cumbre, along road to Yásica Abajo, mixed sloping forest at roadside with concrete fence posts. 70° 35.16' W - 19° 37.52' N, 200 m s. m., 3. February 2008.

12 = NE of Santiago de los Caballeros, La Cumbre, just N of the village, NW slope with banana plantation with scattered trees and fence posts. 70° 36.92' W - 19° 32.73' N, 770 m s. m., 3. February 2008.

13 = NE of Santiago de los Caballeros, c. 5 km N of La Cumbre, small road (side-street) to Pedro Garcia, fence posts along garden. 70° 38.94' W - 19° 35.52' N, 490 m s. m., 3. February 2008.

#### Duarte

14 = NE of San Francisco de Macoris, Reserva Científica, SSE slope of Loma Quita Espuela, starting point at 'Rancho Don Lulu', trail in cocoa plantation with some mature (a.o. mango) trees. 70° 08.80' W - 19° 20.43' N, 400 m s. m., 4. February

2008.

15 = NE of San Francisco de Macoris, Reserva Científica, SSE slope of Loma Quita Espuela, starting point at 'Rancho Don Lulu', trail among open fields with fence trees and fence posts. 70° 08.91' W - 19° 20.67' N, 490 m s. m., 4. February 2008.

#### Puerto Plata

16 = E of Puerto Plata, Sosua, N side of village, residential area with big houses, hotels etc., at coastal site, old wall in street. 70° 31.06' W - 19° 45.52' N, 50 m s. m., 5. February 2008.

17 = E of Puerto Plata, Cabarete, near centre, residential area with castle-like building, area with many mixed trees. 70° 24.90' W - 19° 44.67' N, 10 m s. m., 6. February 2008.

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