

**A NEW SPECIES OF *GLYPHIDOCERA* WALSINGHAM  
(LEPIDOPTERA: GELECHIOIDEA: GLYPHIDOCERIDAE)  
FROM COSTA RICA**

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**Abstract.**—*Glyphidocera guaroa*, n. sp., is described from Costa Rica. A photograph of the imago and illustrations of wing venation, male abdominal sex scales, and male and female genitalia are provided.

**Key Words:** Lepidoptera, Gelechioidea, Costa Rica, Puntarenas, Heredia, Guanacaste, Limón

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*Glyphidocera* Walsingham (1892) are small to medium-sized moths that vary in color from pale yellowish brown to dark brown with few, if any, diagnostic markings. Limited to the New World, their greatest diversity is in the tropics where the numbers of species of *Glyphidocera* are about ten times greater than that of the temperate region. Host associations are unknown for all but *G. juniperella*, which feeds on *Juniperus horizontalis* Moench (Cupressaceae) (Adamski and Brown 1987).

*Glyphidocera* was first recognized by Walsingham (1892) who described *G. audax* from Saint Vincent Island in the West Indies. Originally placed in the Gelechiidae (Walsingham 1892), *Glyphidocera* later was transferred (Hodges 1978), with several other genera, to the Symmocinae (Blasobasidae). Hodges later (1998) transferred Symmocinae to Autostichidae, except for *Glyphidocera*, which he elevated to family rank based on two apomorphies: 1) forewing with  $CuA_1$  and  $CuA_2$  stalked and downcurved from posterodistal angle of cell, and 2) forewing with  $R_s$  terminating on the outer margin. Becker (1999), follow-

ing Hodges (1998), recognized two gelechiid genera, *Ptilostonychia* Walsingham and *Stibarenches* Meyrick, as junior synonyms of *Glyphidocera*.

Glyphidoceridae usually can be recognized by a combination of the following characters: male 4th flagellomere with tuft of setiform scales on dorsal surface extending over concavity with sex scales on the lateral surface of 5th and 6th flagellomeres; male abdomen with squamiform or piliform sex scales on intersegmental membrane between terga 2–3 and/or terga 3–4; valva narrowed basally, abruptly widened apically, apex protracted, base of costa with digitate process; sacculus twisted apically; gnathos projecting dorsally from beneath tuba analis, juxta basally narrow and fused to vinculum, distolaterally expanded and forming a ventral support for the aedeagus; aedeagus with medium to large cornutus or cornuti; ductus ejaculatoris spiralled; female ductus bursae large, sclerotized, with funnel-shaped antrum; ductus seminalis spiralled from middle or posterior end of corpus bursae and with internal sclerotized support; and corpus bursae spinulate, especially at anterior end, and with a sclero-



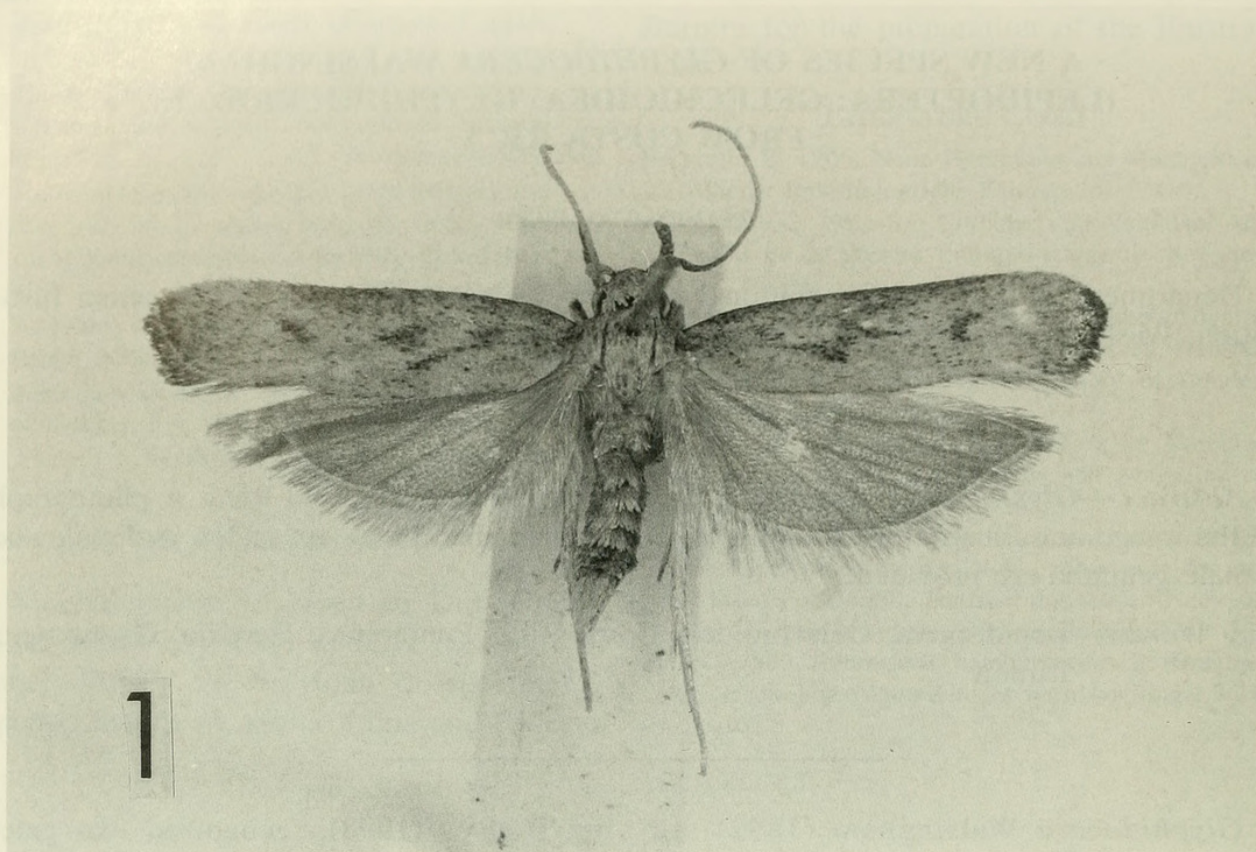


Fig. 1. Holotype of *Glyphidocera guaroa*.

tized plate opposite base of ductus seminalis.

Kornerup and Wanschner (1978) is used as a color standard for the description of the adult vestiture. Genitalia were dissected as described by Clarke (1941), except that mercurochrome and chlorazol black were used as stains. Measurements of wings and genitalia were made using a calibrated ocular micrometer.

The following species is described as part of several major studies planned by the author, including the *Glyphidocera* of Costa Rica.

***Glyphidocera guaroa* Adamski,  
new species  
(Figs. 1–6)**

**Diagnosis.**—*Glyphidocera guaroa* can be distinguished from other species of *Glyphidocera* by the following combination of characters: squamiform sex scales on the intersegmental membrane between abdominal terga 2–3 of the male, an elongate un-

cus, a bulbous gnathos; a widely bifurcate apex of valva, an aedeagus with a large cornutus; female antrum with long longitudinal ridges, and ductus seminalis spiralled, extremely wide basally.

*Glyphidocera guaroa* is most similar to *G. alexandrae* Adamski and Brown (2001) but differs from the latter species by having a bifurcate costal apex of the valva.

**Description, adult.**—**Head:** Vertex and frontoclypeus pale brownish orange intermixed with brown marginal scales tipped with pale brownish orange; outer surface of labial palpus brown intermixed with few pale brownish-orange scales, inner surface pale brownish orange intermixed with few brown scales; scape, pedicel and flagellomeres 1–6 brownish orange, flagellomeres brown distally; 4th flagellomere with a tuft of setiform scales on dorsal surface in male, extending over concavity on 5th and 6th flagellomeres; proboscis pale brownish orange.

**Thorax:** Mesonotum and tegula pale



brownish orange intermixed with few brown scales; legs pale brownish orange intermixed with brown scales; some specimens with areas at midsegment and apical areas of all segments and tarsomeres pale brown; forewing (Figs. 1–2) length 5.9–7.5 mm ( $n = 121$ ), brownish orange intermixed with pale brownish-orange scales tipped with brown and few brown scales; costa and outer margin brown intermixed with few pale-brown scales; discal cell with two spots, one near middle and one near distal end; one brown spot or streak from base of CuP to near midcell spot (spots may be faint in rubbed specimens); fringe scales brown; venation (Fig. 2) with  $R_3$ ,  $R_4$ , and  $R_5$  approximate to distoanterior part of cell;  $M_2$  and  $M_3$  approximate to distoposterior part of cell;  $M_1$  absent;  $CuA_1$  and  $CuA_2$  branched distad of cubitus beyond cell, extending in a slight curve to margin; CuP slightly evident basally; undersurface pale brown except for pale yellowish-brown costa; hindwing pale gray, with two acanthae in female; venation (Fig. 2) with  $R_s$  and  $M_1$  stalked about  $\frac{1}{3}$  length beyond end of cell;  $M_2$  closer to  $M_3$  than to  $M_1$ ;  $M_3$  branched with  $CuA_1$  beyond cell, about  $\frac{1}{4}$  distance as  $R_s$  and  $M_1$ ;  $CuA_2$  arising from cell about  $\frac{2}{3}$  length of cubitus; 1A and 2A separate basally, forming an elliptical support.

**Abdomen** (Fig. 3): Male with squami-form sex scales on intersegmental membrane between abdominal terga 2–3.

**Male genitalia** (Figs. 4–5): Uncus narrow and elongate with few subapical setae; gnathos enlarged distally and forming a bulbous projection with subapical setae on lateral surface; genital capsule slightly tapered from base; valva with apicoventral area beyond sacculus membranous and setose, apex widely bifurcate, base of costa with digitate projection with several apical setae; sacculus curved apically; vinculum narrow, bifurcating at base to nearly 3 times width at  $\frac{1}{2}$  length; juxta fused ventrally with vinculum, widening distolaterally forming a ventral support for aedeagus; aedeagus widest near middle, slightly tapering

toward apex; ductus ejaculatoris with several spirales; vesica with many microspinules and a large cornutus.

**Female genitalia** (Fig. 6): Papillae anales conical, with short and long setae intermixed; apophyses anteriores bifurcating into two thin posterior arms, one fusing with eighth tergum, and one fusing with eighth sternum; eighth sternum spinulate and setose; antrum funnel-shaped, spinulate, and with posterior margin entire, anterior  $\frac{2}{3}$  with longitudinal ridges above two internal flanges; inception of spiralled ductus seminalis near middle of corpus bursae; larger spirales at base, each gradually narrowing toward apical end; ductus seminalis with a spiralled internal support; internal support enlarged basally; accessory lobe opposite base of ductus seminalis, juxtaposed to large, elongate plate; corpus bursae sparsely spinulate, larger spinules near base of ductus seminalis.

**Holotype**.—♂, “Quepos, 30 m P[arque] N[acional] Manuel Antonio, Prov[incia] Punt[arenas], COSTA RICA, G. Varela & R. Zuniga, Oct 1990, L-S-370500, 449000”; “COSTA RICA, INBio, CRI000, 274960” [bar code label]; “INBio Genitalia Slide, Sex ♂, No. 490” [yellow label]. The holotype is deposited in the entomology museum at Instituto Nacional de Biodiversidad (INBio), Santo Domingo, Heredia, Costa Rica.

**Paratypes**.—119 ♂, 2 ♀. All bar code data are “Costa Rica, INBio, CRI000, CRI001, or CRI002” ending with a 6-digit number; only the last digit of the prefix is given with the last 6-digit number. 6 ♂, “Quepos, 80 m, P[arque] N[acional] Manuel Antonio, Prov[incia] Punt[arenas], COSTA RICA, R. Zuniga, Ene 1991, L-S-370900, 448800”; “0564348”; “0564336”; “0366906”; “0564463”; “0564637”; “0366794”; “INBio Genitalia Slide, Sex ♂, No. 465”; 7 ♂, same except, “Feb 1991”; “0625779”; “0347231”; “0347206”; “0346903”; “0625780”; “0347168”; “0346923”; 1 ♂, 1 ♀, same except, “Mar 1993, G. Varela”; “1409702”; “1409698”; “INBio Genitalia



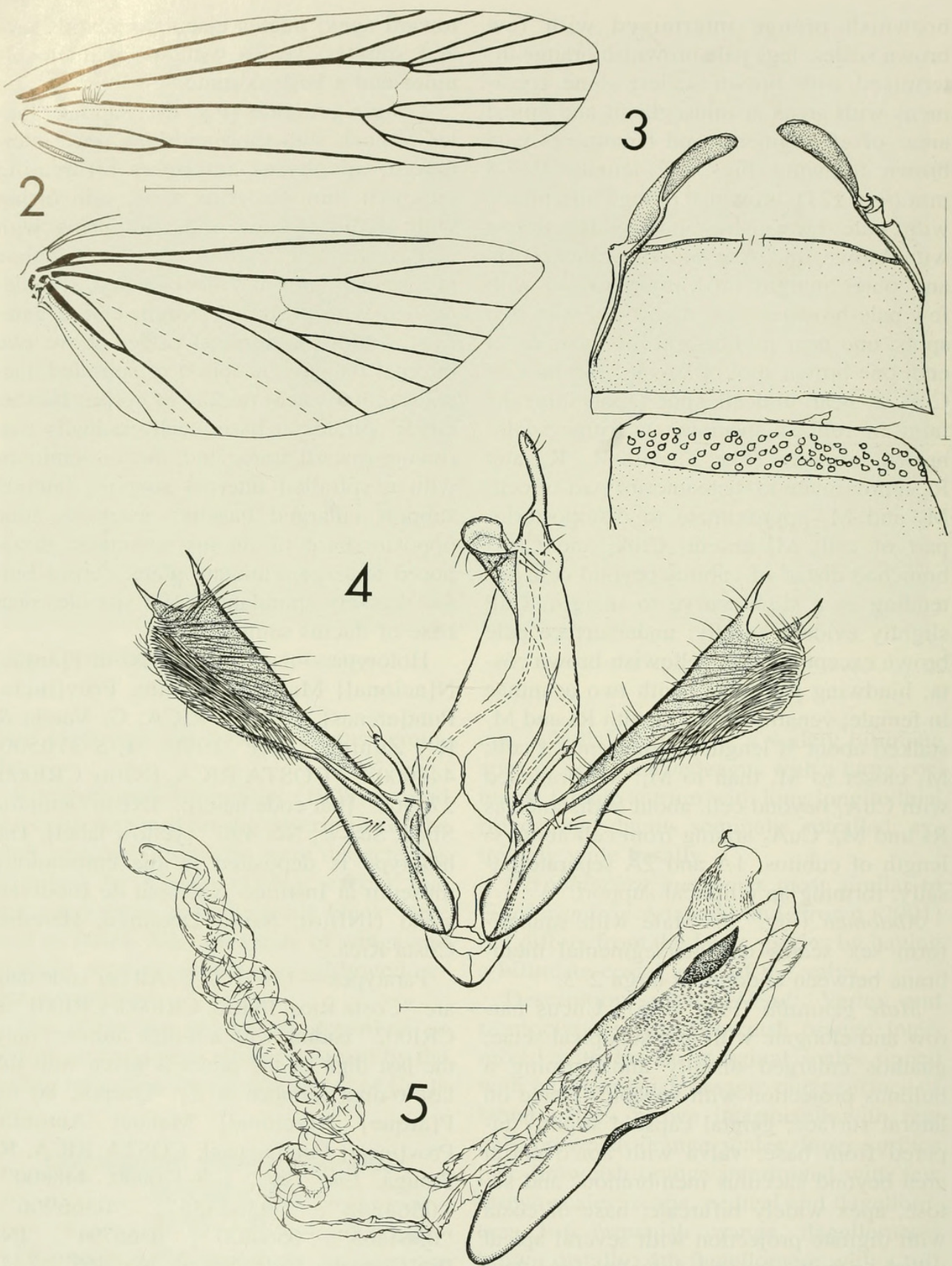


Fig. 2-5. *Glyphidocera guaroa*. 2, Wing venation, female; scale line = 1.0 mm. 3, Male abdominal sex scales; scale line = 1.0 mm. 4-5, Male genitalia; scale line = 0.5 mm.



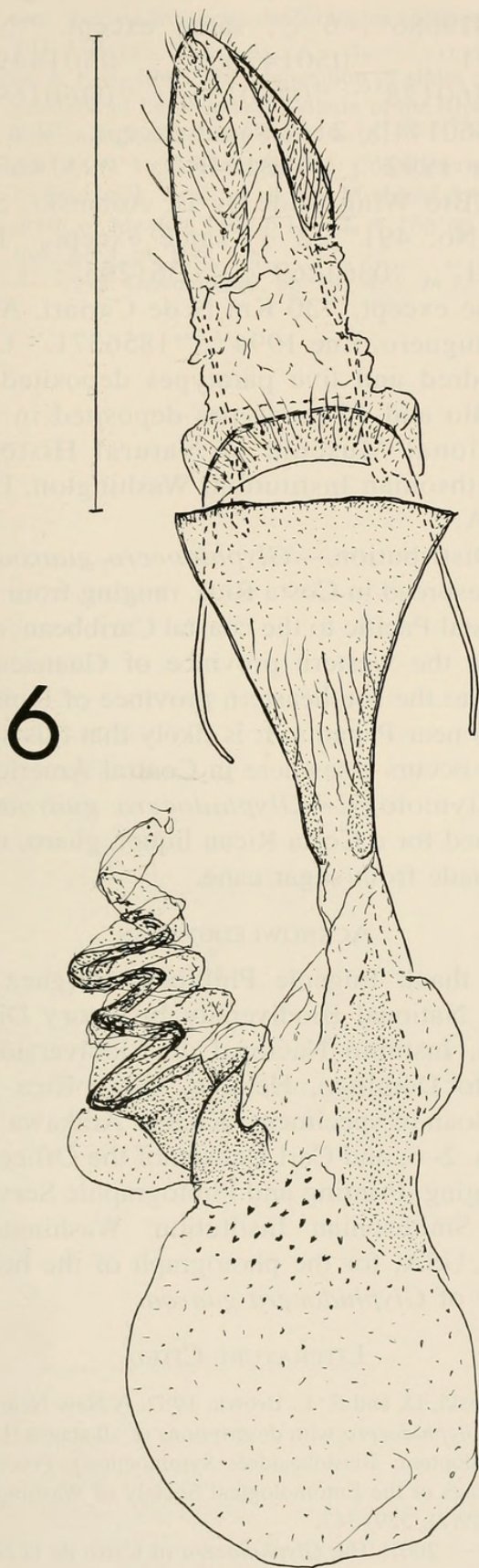


Fig. 6. Female genitalia of *Glyphidocera guaroa*.  
Scale line = 1.0 mm.

Slide, Sex ♀, No. 427"; 1 ♂, same except, "R. Zuniga, Mar 1991"; "0648407"; 1 ♂, same except, "May 1991"; "1319436"; 1 ♂, same except, "Jul 1992, G. Varela"; "0950374"; "INBio Genitalia Slide, Sex, ♀, No. 426"; 1 ♂, same except, "R. Zuniga, Feb 1991"; "0347090"; 5 ♂, same except, "Ago 1993, G. Varela"; "1656013"; "1656023"; "1656008"; "1656012"; "1656082"; 1 ♂, same except, "1992"; "0940614"; 1 ♂, same except, "May 1991, R. Zuniga"; "1319472"; 1 ♂, "Se[p]t 1992, G. Varela"; "0815605"; 1 ♂, same except, "1993"; "1998326"; 1 ♂, same except, "1992, G. Zuniga"; "0935656"; 1 ♂, same except, "G. Varela & R. Zuniga, 1990"; "0223069"; 1 ♂, same except, "Nov 1990"; "0227948"; 6 ♂, same except, "Dic"; "0228703"; "0229104"; "0229072"; "0229266", "0228770"; "0583981"; "INBio Genitalia Slide, Sex, ♂, No. 466"; 8 ♂, "Est[acion] Magsasay, P[arque] N[acional] Braulio Carrillo, 200 m, Prov[incia] Here[dia], COSTA RICA, R. Aguilar, Nov 1990, L-N-264600, 531100"; "0226705"; "0226773"; "0226735"; "0226738"; "0226721"; "0226729"; "0226693"; "0453154"; 2 ♂, same except, "R. Aguilar, Abr 1991"; "0275099"; "0275070"; 2 ♂, same except, "M. Zumbado, Oct 1990"; "0180818"; "0180807"; 2 ♂, same except, "A. Fernandez"; "0179675"; "0179638"; 1 ♂, same except, "R. Aguilar, Dic 1990"; "0701559"; 1 ♂, same except, "May 1991, M. A. Zumbado", "1300398"; 1 ♂, "Est[acion] Pitilla, 700 m 9 km S Sta[tion] Cecilia, Prov[incia] Guan[acaste], COSTA RICA, P. Rios & C. Moraga, Oct 1990, L-N-330200, 380200"; "0197960"; 1 ♂, same except, "C. Moraga, Jul 1991"; "0300184"; 1 ♂, same except, "Ene 1995, #4354"; "2131715"; 1 ♂, same except, "P[arque] N[acional] Guanacaste, 700 m, 19–23 Jun 1993, P. Rios"; "1835123"; "INBio Genitalia Slide by D. Adamski, Sex, ♂, No. 479"; 4 ♂, "Est[acion] Sirena, 0–100 m, P[arque] N[acional] Corcovado, Prov[incia] Punt-



[arenas], COSTA RICA, G. Fonseca, Se[p]t 1991, L-S-270500, 508300"; "0357571"; "0357617"; "0357448"; "0357507"; 2 ♂, same except, "1990"; "0179079"; "0179187"; 1 ♂, same except, "1991"; "0643420"; 2 ♂, same except, "Nov 1990"; "0183423"; "0183251"; 1 ♂, same except, "1993, #2490"; "1625857"; 2 ♂, same except, "G. Fonseca, Dic 1992"; "0783807"; "0783813"; 1 ♂, same except, "1990"; "0297295"; 1 ♂, same except, "J.C. Saborio, 1991"; "0526635"; 1 ♂, same except, "G. Fonseca, Feb 1992"; "0621647"; 3 ♂, same except, "Mar 1992"; "0780383"; "0788594"; "0780480"; 2 ♂, same except, "Abr 1991"; "0475866"; "0475887"; 3 ♂, "same except, May 1991"; "0587949"; "0588114"; "0587822"; 1 ♂, same except, "1992"; "0914822"; 2 ♂, same except, "Jun 1991", "0646450"; "0646447"; 1 ♂, same except, "1992"; "0708208"; 4 ♂, "Sector Cerro Cocori, F[in]ca de E. Rojas, 150 m, Prov[incia] Limon, Costa Rica, E. Rojas, 31 Ene-21 Feb 1992, L-N-286000, 567500"; "0785313"; "0775096"; "0775089"; "IN-Bio Genitalia Slide by D. Adamski, Sex, ♂, No. 471" [yellow label]; "0785137"; "IN-Bio Genitalia Slide by D. Adamski, Sex, ♂, No. 470"; 1 ♂, same except, "1993"; "0402859"; 2 ♂, same except, "Feb 1993"; "0998918"; "0998790"; "INBio Genitalia Slide by D. Adamski, Sex ♂, No. 425"; 5 ♂, same except, "Mar 1992"; "0363635"; "0363719"; "0363734"; "0363593"; "0363629"; 1 ♂, same except, "1991"; "0181437"; 6 ♂, same except, "Abr 1992"; "0785544"; "0785511"; "0785518"; "0786302"; "0785501"; "INBio Genitalia Slide by D. Adamski, Sex ♂, No. 482"; "0786366"; "INBio Wing Slide by D. Adamski, Sex ♂, No. 429"; 1 ♂, same except, "May 1992"; "0373560"; 2 ♂, same except, "26 Jun a 16 Jul 1992"; "0703169"; "0745136"; 1 ♂, same except, "1993"; "1699131"; "INBio Genitalia Slide by D. Adamski, Sex ♂, No. 472"; 1 ♂, same except, "Se[p]t 1991"; "0598938"; 1 ♂, same except, "Se[p]t 1993"; "1141370"; 1 ♂, same except, "Oct 1992";

"0819686"; 6 ♂, same except, "Nov 1991"; "0501470"; "0501449"; "0460128"; "0460151"; "0460169"; "0460144"; 2 ♂, same except, "9 a 30 Nov 1992"; "0931418"; "0931463"; "INBio Wing Slide by D. Adamski, Sex ♂, No. 491"; 2 ♂, same except, "Dic 1991"; "0361269"; "0361205"; 1 ♂, same except, "30 Km N de Cariari, A.C. Tortuguero, Ene 1994"; "1856571." One hundred and five paratypes deposited in INBio and 15 paratypes deposited in the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

**Distribution.**—*Glyphidocera guaroa* is widespread in Costa Rica, ranging from the coastal Pacific to the coastal Caribbean, and from the western province of Guanacaste east to the southeastern province of Puntarenas near Panama. It is likely that this species occurs elsewhere in Central America.

**Etymology.**—*Glyphidocera guaroa* is named for a Costa Rican liquor, güaro, that is made from sugar cane.

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