

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marçayata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org] [1483] version 1 8/2022



Puyucunapi Reserve has an experimental restoration project run by Mindo Cloud Forest Foundation (MCF). The property encompasses 200 hectares of a heterogeneous habitat consisting of remnants of cloud forest patches embedded in a matrix of pastureland. At this site, MCF Foundation keeps a greenhouse in which several native tree species are propagated, with the aim to restore former pasture land and connect patches of remnant vegetation. The farm stretches over an elevation gradient of 1800 to 2200 meters of elevation and is surrounded by many other reserves in the study area. In the course of our Ecology of Plant Hummingbird Interactions Project (EPHI) we sampled hummingbird and hummingbird-visited plants, and their interactions. We have recorded 11 species of hummingbirds visiting 74 species of plants. We hope that the information presented in this guide may help guide future restoration projects at this site. We thank the Tellkamp family and MCF Foundation for granting access to their land, and Pedro and Maikol Carlosama for their continuous support during our field activities.



1 *Bomarea pardina*
ALSTROEMERIACEAE



2 *Guzmania bracteosa*
BROMELIACEAE



3 *Guzmania bracteosa*
BROMELIACEAE



4 *Guzmania danielii*
BROMELIACEAE



5 *Guzmania danielii*
BROMELIACEAE



6 *Guzmania jaramilloi*
BROMELIACEAE



7 *Guzmania jaramilloi*
BROMELIACEAE



8 *Guzmania teuscheri*
BROMELIACEAE



9 *Guzmania teuscheri*
BROMELIACEAE



10 *Guzmania xanthobracteata*
BROMELIACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcapata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org]

[1483] version 1 8/2022



11 *Guzmania xanthobracteata*
BROMELIACEAE



12 *Mezobromelia capituligera*
BROMELIACEAE



13 *Mezobromelia capituligera*
BROMELIACEAE



14 *Pitcairnia fusca*
BROMELIACEAE



15 *Pitcairnia fusca*
BROMELIACEAE



16 *Tillandsia complanata*
BROMELIACEAE



17 *Tillandsia complanata*
BROMELIACEAE



18 *Tillandsia truncata*
BROMELIACEAE



19 *Tillandsia truncata*
BROMELIACEAE



20 *Burmeistera lutosa*
CAMPANULACEAE



21 *Centropogon nigricans*
CAMPANULACEAE



22 *Centropogon nigricans*
CAMPANULACEAE



23 *Centropogon solanifolius*
CAMPANULACEAE



24 *Centropogon solanifolius*
CAMPANULACEAE



25 *Macleania bullata*
ERICACEAE



26 *Macleania recumbens*
ERICACEAE



27 *Macleania tropica*
ERICACEAE



28 *Macleania tropica*
ERICACEAE



29 *Psammisia aberrans*
ERICACEAE



30 *Psammisia ecuadorensis*
ERICACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcaty, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org]

[1483] version 1 8/2022



31 *Psammisia ecuadorensis*
ERICACEAE



32 *Psammisia flaviflora*
ERICACEAE



33 *Psammisia oreogenes*
ERICACEAE



34 *Psammisia oreogenes*
ERICACEAE



35 *Psammisia sodiroi*
ERICACEAE



36 *Psammisia ulbrichiana*
ERICACEAE



37 *Psammisia ulbrichiana*
ERICACEAE



38 *Sphyrsperrum buxifolium*
ERICACEAE



39 *Sphyrsperrum buxifolium*
ERICACEAE



40 *Sphyrsperrum dissimile*
ERICACEAE



41 *Sphyrsperrum dissimile*
ERICACEAE



42 *Sphyrsperrum grandifolium*
ERICACEAE



43 *Sphyrsperrum grandifolium*
ERICACEAE



44 *Sphyrsperrum sodiroi*
ERICACEAE



45 *Sphyrsperrum sodiroi*
ERICACEAE



46 *Thibaudia inflata*
ERICACEAE



47 *Thibaudia inflata*
ERICACEAE



48 *Columnea angulata*
GESNERIACEAE



49 *Columnea angulata*
GESNERIACEAE



50 *Columnea ciliata*
GESNERIACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcatayata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org]

[1483] version 1 8/2022



51 *Columnea ciliata*
GESNERIACEAE



52 *Columnea katzensteiniae*
GESNERIACEAE



53 *Columnea katzensteiniae*
GESNERIACEAE



54 *Columnea kucyniakii*
GESNERIACEAE



55 *Columnea kucyniakii*
GESNERIACEAE



56 *Columnea medicinalis*
GESNERIACEAE



57 *Columnea medicinalis*
GESNERIACEAE



58 *Columnea strigosa*
GESNERIACEAE



59 *Columnea strigosa*
GESNERIACEAE



60 *Drymonia brochidodroma*
GESNERIACEAE



61 *Drymonia brochidodroma*
GESNERIACEAE



62 *Drymonia collegarum*
GESNERIACEAE



63 *Drymonia collegarum*
GESNERIACEAE



64 *Gasteranthus lateralis*
GESNERIACEAE



65 *Gasteranthus lateralis*
GESNERIACEAE



66 *Gasteranthus leopardus*
GESNERIACEAE



67 *Gasteranthus leopardus*
GESNERIACEAE



68 *Gasteranthus pansamalanus*
GESNERIACEAE



69 *Gasteranthus pansamalanus*
GESNERIACEAE



70 *Gasteranthus quitensis*
GESNERIACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcapata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org]

[1483] version 1 8/2022



70 *Gasteranthus quitensis*
GESNERIACEAE



71 *Glossoloma oblongicalyx*
GESNERIACEAE



72 *Glossoloma oblongicalyx*
GESNERIACEAE



73 *Glossoloma subglabrum*
GESNERIACEAE



75 *Glossoloma subglabrum*
GESNERIACEAE



76 *Heppiella ulmifolia*
GESNERIACEAE



77 *Heppiella ulmifolia*
GESNERIACEAE



78 *Kohleria affinis*
GESNERIACEAE



79 *Kohleria affinis*
GESNERIACEAE



80 *Kohleria spicata*
GESNERIACEAE



81 *Kohleria spicata*
GESNERIACEAE



82 *Kohleria villosa*
GESNERIACEAE



83 *Kohleria villosa*
GESNERIACEAE



84 *Pachycaulos nummularia*
GESNERIACEAE



85 *Pachycaulos nummularia*
GESNERIACEAE



86 *Heliconia burleana*
HELICONIACEAE



87 *Heliconia burleana*
HELICONIACEAE



88 *Heliconia impudica*
HELICONIACEAE



89 *Heliconia impudica*
HELICONIACEAE



90 *Salvia scutellarioides*
LAMIACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcatayata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org] [1483] version 1 8/2022



91 *Salvia scutellarioides*
LAMIACEAE



92 *Salvia tortuosa*
LAMIACEAE



93 *Abutilon pictum*
MALVACEAE



94 *Abutilon pictum*
MALVACEAE



95 *Calathea ischnosiphonoides*
MARANTACEAE



96 *Calathea ischnosiphonoides*
MARANTACEAE



97 *Meriania tomentosa*
MELASTOMATACEAE



98 *Meriania tomentosa*
MELASTOMATACEAE



99 *Miconia* sp. 1
MELASTOMATACEAE



100 *Miconia* sp. 1
MELASTOMATACEAE



101 *Fuchsia macrostigma*
ONAGRACEAE



102 *Fuchsia macrostigma*
ONAGRACEAE



103 *Fuchsia magellanica*
ONAGRACEAE



104 *Fuchsia magellanica*
ONAGRACEAE



105 *Elleanthus aurantiacus*
ORCHIDACEAE



106 *Elleanthus aurantiacus*
ORCHIDACEAE



107 *Elleanthus smithii*
ORCHIDACEAE



108 *Elleanthus smithii*
ORCHIDACEAE



109 *Cinchona pubescens*
RUBIACEAE



110 *Cinchona pubescens*
RUBIACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

7

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcatayata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org] [1483] version 1 8/2022



111 *Palicourea demissa*
RUBIACEAE



112 *Palicourea demissa*
RUBIACEAE



113 *Palicourea sodiroi*
RUBIACEAE



114 *Palicourea sodiroi*
RUBIACEAE



115 *Brugmansia candida*
SOLANACEAE



116 *Brugmansia candida*
SOLANACEAE



117 *Cuatresia exiguiflora*
SOLANACEAE



118 *Cuatresia exiguiflora*
SOLANACEAE



119 *Trianaea speciosa*
SOLANACEAE



120 *Trianaea speciosa*
SOLANACEAE



121 *Tropaeolum adpressum*
TROPAEOLACEAE



122 *Tropaeolum adpressum*
TROPAEOLACEAE



123 *Renealmia aurantifera*
ZINGIBERACEAE



124 *Renealmia aurantifera*
ZINGIBERACEAE



125 *Renealmia fragilis*
ZINGIBERACEAE



126 *Renealmia fragilis*
ZINGIBERACEAE



127 *Renealmia ligulata*
ZINGIBERACEAE



128 *Renealmia ligulata*
ZINGIBERACEAE



129 *Renealmia oligotricha*
ZINGIBERACEAE



130 *Renealmia oligotricha*
ZINGIBERACEAE

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcatayata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve



© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org] [1483] version 1 8/2022



131 *Adelomyia melanogenys*
TROCHILIDAE
Speckled Hummingbird



132 *Adelomyia melanogenys*
TROCHILIDAE
Speckled Hummingbird



133 *Aglaiocercus coelestis* ♂
TROCHILIDAE
Violet-tailed Sylph



134 *Coeligena torquata* ♂
TROCHILIDAE
Collared Inca



135 *Coeligena wilsoni*
TROCHILIDAE
Brown Inca



136 *Coeligena wilsoni*
TROCHILIDAE
Brown Inca

Puyucunapi Reserve, Quito, Pichincha, Ecuador

Plants of Puyucunapi Visited by Hummingbirds

Francisco Tobar^{1,4}, Esteban A. Guevara^{1,2}, Tatiana Santander G.¹, Cristian Poveda¹, María José Gavilanes¹, Álvaro J. Pérez³, Bryan Rojas¹, Daniela Cevallos³, Edison Rea³ & Catherine H. Graham²

¹Área de Investigación y Monitoreo de Avifauna, Aves y Conservación – BirdLife en Ecuador, ²Biodiversity and Conservation Biology Unit, Swiss Federal Research Institute WSL, ³Herbario QCA, Pontificia Universidad Católica del Ecuador, ⁴Herbario Nacional del Ecuador, y el Instituto Nacional de Biodiversidad

Photos: Francisco Tobar, Andrés Marcatayata, Holger Beck, Andrea Nieto, Aves y Conservación. Produced by Francisco Tobar [pacotobar76@hotmail.com]

Acknowledgments: Swiss Federal Research Institute (WSL) – National Geographic Society (Grant N° 9952-16) – Swiss National Science Foundation (SNF Grant N° 173342) – European Research Council Advanced Grants (ERC Grant N° 787638) – Aves y Conservación/BirdLife in Ecuador – Rufford Foundation – Puyucunapi Reserve

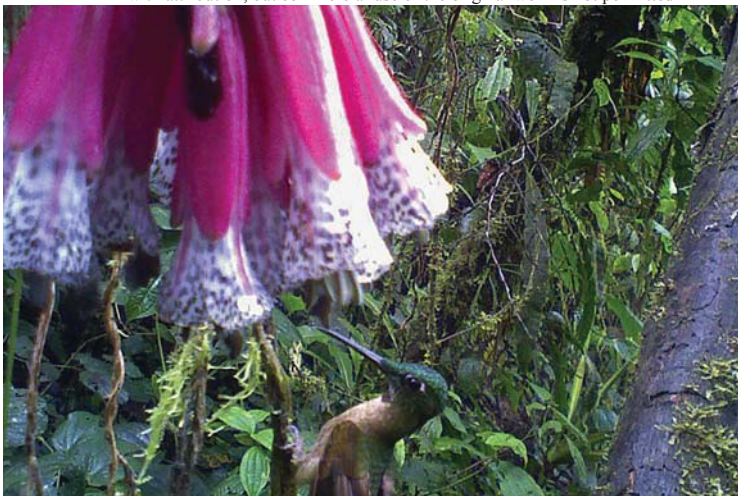


© Field Museum (2022) CC BY-NC 4.0. Licensed works are free to use/share/remix with attribution, but commercial use of the original work is not permitted

[fieldguides.fieldmuseum.org]

[1483]

version 1 8/2022



137 *Heliodoxa rubinoides* ♂
TROCHILIDAE
Fawn-breasted Brilliant



138 *Heliodoxa rubinoides* ♂
TROCHILIDAE
Fawn-breasted Brilliant



139 *Ocreatus underwoodii* ♂
TROCHILIDAE
Booted Racket-tail



140 *Phaethornis syrmatophorus*
TROCHILIDAE
Tawny-bellied Hermit



141 *Phaethornis syrmatophorus*
TROCHILIDAE
Tawny-bellied Hermit



142 *Schistes albogularis*
TROCHILIDAE
Choco Daggerbill