

INTRODUCTION TO TROPICAL BIODIVERSITY

October 1 - 9, 2021



Sponsored by the Canopy Family and Naturalist Journeys

Participants: Fred, Bruce, Patricia, Joanna, Erin, Michelle, Ted, Brett
and Emily

Guest Scientists: Drs. Carol Simon and Howard Topoff

Canopy Guides: Igua Jimenez and Tino Sanchez
(And Sometimes Alex Sanchez)



Photo By Tino Sanchez

After being in COVID isolation for 20 months our group cautiously got on planes all over the country and landed in Panama City where we were met by Canopy drivers. Upon arrival at the Tower we gradually relaxed, got to know each other and felt comfortable in our semi-isolated surroundings. There were some challenges with a scrambled (but complete) itinerary, time off for getting the required COVID tests for re-entering the USA and extra days added to our trips to allow for paperwork and testing. In the end, we were all glad we had come and we greatly enjoyed learning from each other. We had an exceptional group of professional biologists, as well as those who simply had a keen interest in everything we saw. It was a lot of fun!



Canopy Tower
Photo By Carol Simon



Birding On Plantation Road
Photo By Carol Simon

We spent four nights in the Panamanian lowlands at the Canopy Tower and another four just below cloud forest elevations at the Canopy Lodge. In very different habitats, and at different elevations, conditions were optimal for us to see a great variety of insects and arachnids, frogs, lizards, birds and mammals. Although we concentrated on every creature we saw, the dedicated birders were very happy with their avian viewing, thanks to our talented Canopy guides. We were usually in the field twice a day and added many night excursions.



Katydid
Photo By Howard Topoff

We also visited scientific and cultural centers such as the El Valle Market, the Miraflores Locks on the Panama Canal, the BioMuseo in Panama City, Herpetologist Mario Urriola's collections and an attempt at housing the



A Good Meal For Insects
Photo by Howard Topoff



Harpy Eagle In Captivity
Photo by Howard Topoff

Panamanian Golden Frog, which exists only in captivity. Several of these venues had modified experiences due to COVID protocols, but we still enjoyed them all. A highlight of the trip was the almost daily presentations that our guest scientists provided.

Itinerary:

October 1: Arrival and Orientation at Canopy Tower

October 2: Semaphore Hill, Summit Gardens and local night drive

October 3: Pipeline Road, BioMuseo and local night drive

October 4: Gatun Lake boat ride, Summit Ponds, Old Gamboa
Road and local night drive

October 5: Gamboa Resort grounds, Miraflores Locks, transfer from
Canopy Tower to Canopy Lodge and night walk on Lodge grounds

October 6: La Mesa, Las Minas Road, Canopy Adventure and night walk
on Lodge grounds

October 7: Altos del Maria and night walk on Lodge grounds

October 8: Canopy Adventure, El Valle Market and Cerro Gaital

October 9: Departures

Presentations by our Guest Scientists:

Introduction to Tropical Rainforests

Tropical Botany

Primates of Latin America

Social Insects of the Rainforest

100 Years of the Panama Canal

Poisonous Amphibians and Venomous Reptiles Tropical Botany

Bird Brains

BIRDS

Tinamous - Tinamidae

Great Tinamou, *Tinamus major*

Little Tinamou, *Crypturellus soui*

Ducks, Swans, Geese - Anatidae

Black-bellied Whistling-Duck, *Dendrocygna autumnal*

Curassows, Guans, Chacalacas - Cracidae

Gray-headed Chachalaca, *Ortalis cinereiceps*

Nightjars - Caprimulgidae

Common Nighthawk, *Chordeiles minor*

Swifts - Apodidae

Band-rumped Swift, *Chaetura spinicaudus*

Short-tailed Swift, *Chaetura brachyura*

Lesser Swallow-tailed Swift, *Panyptila cayennensis*

Hummingbirds - Trochilidae

White-necked Jacobin, *Florisuga mellivora*

White-tipped Sicklebill, *Eutoxeres aquila*

Stripe-throated Hermit, *Phaethornis strigularis*

Green Hermit, *Phaethornis longirostris*

Long-billed Hermit, *Phaethornis longirostris*

Rufous-crested Coquette, *Lophornis delattrei*

Green-crowned Brilliant, *Heliodoxa jacula*

Long-billed Starthroat, *Heliomaster longirostris*

Garden Emerald, *Chlorostibon assimilis*

Violet-headed Hummingbird, *Klais guimeti*

Bronze-tailed Plumeleteer, *Chalybura urochrysis*

White-vented Plumeleteer, *Chalybura buffonii*

Crowned Woodnymph, *Thalurania colombica*

Snowcap, *Microchera albocoronata* (HO)

Snowy-bellied Hummingbird, *Amazilia edward*

Rufous-tailed Hummingbird, *Amazilia tzacatl*
Blue-chested Hummingbird, *Polyerata amabilis*
Violet-bellied Hummingbird, *Chlorestes julie*

Cuckoos - Cuculidae

Greater Ani, *Crotophaga major*
Smooth-billed Ani, *Crotophaga ani*
Squirrel Cuckoo, *Piaya cayana*
Black-billed Cuckoo, *Coccyzus erythrophthalmus*

Pigeons, Doves - Columbidae

Rock Pigeon, *Columba livia*
Scaled Pigeon, *Patagionenas speciosa*
Pale-vented Pigeon, *Patagioenas cayennensis*
Ruddy Ground-Dove, *Columbina talpacoti*
White-tipped Dove, *Leptotila verreauxi*

Rails, Crates, Coots - Rallidae

Gray-cowled Wood-Rail, *Aramides cajaneus*
Purple Gallinule, *Porphyrio martinica*
White-throated Crate, *Laterallus albigularis* (HO)

Limpkin - Aramididae

Limpkin, *Aramus guarauna*

Plovers - Charadriidae

Southern Lapwing, *Vanellus chilensis*

Jacanas - Jacanidae

Wattled Jacana, *Jacana jacana*

Sandpipers, Snipes - Scolopacidae

Short-billed Dowitcher, *Limnodromus griseus*
Spotted Sandpiper, *Actitis macularius*

Gulls, Terns, Skimmers - Laridae

Laughing Gull, *Leucophaeus atricilla*
Gull-billed Tern, *Gelochelidon nilotica*

Frigatebirds - Fregatidae

Magnificent Frigatebird, *Fregata magnificens*

Anhinga - Anhingidae

Anhinga, *Anhinga anhinga*

Cormorants, Shags - Phalacrocoracidae

Neotropic Cormorant, *Nannopterum brasilianum*

Ibises, Spoonbills - Threskiornithidae

American White Ibis, *Eudocimus albus*

Hérons, Bitterns - Ardeidae

Rufescent Tiger-Heron, *Tigrisoma lineatum*

Boat-billed Heron, *Cochlearius cochlearius*

Green Heron, *Butorides virescens*

Western Cattle Egret, *Bubulcus ibis*

Cocoi Heron, *Ardea cocoi*

Great Egret, *Ardea alba*

Snowy Egret, *Egretta thula*

Pelicans - Pelecanidae

Brown Pelican, *Pelecanus occidentalis*

New World Vultures - Cathartidae

King Vulture, *Sacoramphus papa*

Black Vulture, *Coragyps atratus*

Turkey Vulture, *Cathartes aura*

Ospreys - Pandionidae

Western Osprey, *Pandion haliaetus*

Kites, Hawks, Eagles - Accipridae

Black Hawk-Eagle, *Spizaetus tyrannus*

Black-and-white Hawk-Eagle, *Spizaetus melanoleucus*

Double-toothed Kite, *Harpagus bidentatus*

Snail Kite, *Rostrhamus sociabilis*

White hawk, *Pseudastur albicollis*

Gray-lined Hawk, *Buteo niitadus*

Broad-winged Hawk, *Buteo platypterus*
Swainson's Hawk, *Buteo swainsoni*

Owls - Strigidea

Crested Owl, *Lophotrix cristata*
Mottled Owl, *Strix virgata*
Choco Screech Owl, *Megascops centralis*

Trogons - Trogonidae

Slaty-tailed Trogon, *Trogon massena*
Black-tailed Trogon, *Trogon melanurus*
White-tailed Trogon, *Trogon chionurus*
Gartered Trogon, *Trogon caligatus*
Black-throated Trogon, *Trogon rufus*
Collared Trogon, *Trogon collaris*

Kingfishers - Alcedinidae

Amazon Kingfisher, *Chloroceryle amazona*
American Pygmy Kingfisher, *Chloroceryle aenea*
Green Kingfisher, *Chloroceryle americana*
Ringed Kingfisher, *Megaceryle alcyon*

Motmots - Momotidae

Tody Motmot, *Hylomanes momotula*
Whooping Motmot, *Momotus subrufescens*
Rufous Motmot, *Baryphthengus martii*
Broad-billed Motmot, *Electron platyrhynchum*

Puffbirds - Galbulidae

Black-breasted Puffbird, *Notharchus pectoralis*
White-whiskered Puffbird, *Malacoptila panamensis*

New World Barbets - Capitonidae

Spot-crowned Barbet, *Capito maculicoronatus*

Toucans - Ramphastidae

Collared Aracari, *Pteroglossus torquatus*
Keel-billed Toucan, *Ramphastos sulfuratus*
Northern Emerald-Toucanet, *Aulacorhynchus prasinus*

Woodpeckers - Picidae

Black-cheeked Woodpecker, *Melanerpes pucherani*

Red-crowned Woodpecker, *Melanerpes rubricapillus*

Yellow-bellied Sapsucker, *Sphyrapicus varius*

Cinnamon Woodpecker, *Celeus loricatus*

Lineated Woodpecker, *Dryocopus lineatus*

Crimson-crested Woodpecker, *Campephilus melanoleucos*

Caracaras, Falcons - Falconidae

Yellow-headed Caracara, *Milvago chimachima*

Crested Caracara, *Caracara plancus*

Barred Forest Falcon, *Micrastur ruficollis*

Slaty-black Forest Falcon, *Micrastur mirandollei*

Bat Falcon, *Falco rufigularis*

Peregrine Falcon, *Falco peregrinus*

African & New World Parrots - Psittacidae

Orange-chinned Parakeet, *Brotogeris jugularis*

Brown-hooded Parrot, *Pyrilia haematotis*

Blue-headed Parrot, *Pionus menstruus*

Red-lored Amazon, *Amazona autumnalis*

Ovenbirds - Furnariidae

Olivaceous Woodcreeper, *Sittasomus griseicapillus*

Wedge-billed Woodcreeper, *Glyphorhynchus spirurus*

Cocoa Woodcreeper, *Xiphorhynchus susurrant*

Spotted Woodcreeper, *Xiphorhynchus erythropygius*

Plain Xenops, *Xenops minutus*

Spotted Barbtail, *Premnoplex brunnescens*

Antbirds - Thamnophilidae

Dot-winged Antwren, *Microrhopias quixensis*

Checker-throated Stipplethroat, *Epinecrophylla fulviventris*

Plain Antvireo, *Dysithamnus mentalis*

Barred Antshrike, *Thamnophilus doliatus*

Black-crowned Antshrike, *Thamnophilus atrinucha*

Dusky Antbird, *Cercomacroides tyrannina*

Spotted Antbird, *Hylophylax naevioides*

Chestnut-backed Antbird, *Poliocrania exsul*

Dull-mantled Antbird, *Sipia laemosticta*

Antthrushes - Formicariidae

Black-faced Ant Thrush, *Formicarius analis*

Tyrant Flycatchers, Calypyura - Tyrannidae

Brown-capped Tyrannulet, *Ornithion brunneicapillus*
Southern Beardless Tyrannulet, *Camptostoma obsoletum*
Mistletoe Tyrannulet, *Zimmerius parvus*
Olive-striped Flycatcher, *Mionectes olivaceus*
Ochre-bellied Flycatcher, *Mionectes oleagineus*
Bran-colored Flycatcher, *Myiophobus fasciatus*
Southern Bentbill, *Oncostoma olivaceum*
Scale-crested Pygmy-Tyrant, *Lophotriccus pileatus*
Common Tody-Flycatcher, *Todirostrum cinereum*
Olivaceous Flatbill, *Rhynchocyclus olivaceus*
Yellow-olive Flycatcher, *Tolmomyias sulphurescens*
Golden-crowned Spadebill, *Platyrinchus coronatus*
Northern Tufted Flycatcher, *Mitrephanes phaeocercus*
Olive-sided Flycatcher, *Cantopus cooperi*
Acadian Flycatcher, *Empidonax virescens*
Rusty-margined Flycatcher, *Myiozetetes granadensis*
Social Flycatcher, *Myiozetetes similis*
Great Kiskadee, *Pitangus sulphuratus*
Lesser Kiskadee, *Philohydor lictor*
Sulfur-bellied Flycatcher, *Myiodynastes luteiventris*
Streaked Flycatcher, *Myiodynastes maculatus*
Tropical Kingbird, *Tyrannus melancholicus*
Eastern Kingbird, *Tyrannus tyrannus*
Panamanian Flycatcher, *Myiarchus panamensis*
Great Crested Flycatcher, *Myiarchus crinitus*
Bright-rumped Attila, *Attila spadiceus*

Cotingas - Cotingidae

Blue Cotinga, *Cotinga nottereri*

Manakins - Pipridae

White-ruffed Manakin, *Corapipo lateralis*
Blue-crowned Manakin, *Lepidothrix coronata*
Golden-collared Manakin, *Manacus vitellinus*
Red-capped Manakin, *Ceratopipra mentalis*

Golden-headed Manakin, *Ceratopipra erythrocephala*

Tityras, Becards, Sharpbill - Tityridae

Black-tailed Myiobius, *Myiobius atricaudus*

Ruddy-tailed Flycatcher, *Terenotriccus erythrurus*

Masked Tityra, *Tityra semifasciata*

Northern Schiffornis, *Schiffornis veraepacis*

Vireos, Greenlets, Shrike-babblers - Vireonidae

Green Shrike-Vireo, *Vireolanius pulchellus*

Lesser Greenlet, *Pachysylvia decurtata*

Red-eyed Vireo, *Vireo olivaceus*

Yellow-throated Vireo, *Vireo flavifrons*

Crows, Jays - Corvidae

Black-chested Jay, *Cyanocorax affinis*

Swallows, Martins - Hirundinidae

Mangrove Swallow, *Tachycineta albilinea*

Blue-and-white Swallow, *Pygochelidon cyanoleuca*

Southern Rough-winged Swallow, *Stelgidopteryx ruficollis*

Gray-breasted Martin, *Progne chalybea*

Barn Swallow, *Hirundo rustica*

American Cliff Swallow, *Petrochelidon pyrrhonota*

Wrens - Troglodytidae

Rufous-breasted Wren, *Pheugopedius rutilus* (HO)

Rufous-and-white Wren, *Thryophilus rufalbus*

Bay Wren, *Cantorchilus nigricapillus*

House Wren, *Troglodytes aedon*

Ochraceous Wren, *Troglodytes ochraceous* (HO)

White-breasted Wood-wren, *Henicorhina leucosticta*

Grey-breasted Wood-wren, *Henicorhina leucophrys*

Scaly-breasted Wren, *Microcerculus marginatus*

Gnatcatchers - Polioptilidae

Trilling Gnatwren, *Ramphocaenus melanurus*

Tawny-faced Gnatwren, *Microbates cinereiventris*

White-browed Gnatcatcher, *Polioptila bilineata*

Mockingbirds, Thrashers - Mimidae

Tropical Mockingbird, *Mimus gilvus*

Thrushes - Turdidae

Wood Thrush, *Hylocichla mustelina*

Swainson's Thrush, *Catharus ustulatus*

Veery, *Catharus fuscescens*

Pale-vented Thrush, *Turdus obseletus*

Clay-colored Thrush, *Turdus grayi*

Finches, Euphonias - Fringillidae

Yellow-crowned Euphonia, *Euphonia luteicapilla*

White-vented Euphonia, *Euphonia minuta*

Thick-billed Euphonia, *Euphonia lanirostris*

Fulvous-vented Euphonia, *Euphonia fulvicrissa*

Tawny-capped Euphonia, *Euphonia anneae*

New World Sparrows - Passerellidae

Common Bush Tanager, *Chlorospingus flavopectus*

Orange-billed Sparrow, *Arremon aurantirostris*

Chestnut-capped Brushfinch, *Arremon brunneinucha*

Oropendolas, Orioles, Blackbirds - Icteridae

Yellow-billed Cacique, *Amblycercus holosericeus*

Chestnut-headed Oropendula, *Psarocolius wagleri*

Scarlet-rumped Cacique, *Cacicus microrhynchus*

Yellow-backed Oriole, *Icterus chrysater*

Baltimore Oriole, *Icterus galbula*

Shiny Cowbird, *Molothrus bonariensis*

Great-tailed Grackle, *Quiscalus mexicanus*

New World Warblers - Parulidae

Louisiana Waterthrush, *Parkesia motacilla*

Northern Waterthrush, *Parkesia noveboracensis*

Prothonotary Warbler, *Protonotaria citrea*

Mourning Warbler, *Geothlypis philadelphia*

American Redstart, *Setophaga ruticilla*

Cerulean Warbler, *Setophaga cerulea*

Northern Parula, *Setophaga americana*

Blackburnian Warbler, *Setophaga fusca*



Collared Trogon
Photo by Howard Topoff

American Yellow Warbler, *Setophaga aestiva*
Chestnut-sided Warbler, *Setophaga pennsylvanica*
Buff-rumped Warbler, *Myiothlypis fulvicauda*
Chestnut-capped Warbler, *Basileuterus delatirii*
Canada Warbler, *Cardeliina canadensis*

Mitospringid Tanagers - Mitrospringidae
Dusky-faced Tanager, *Mitrospringus cassinii*

Cardinals and Allies - Cardinalidae
Summer Tanager, *Piranga rubra*
Red-crowned Ant Tanager, *Habia rubica*
Black-faced Grosbeak, *Caryothraustes poliogaster*
Green Honeycreeper, *Chlorophanes spiza*
Black-and-Yellow Tanager, *Chrysothlypis chrysomelas*
Red-legged Honeycreeper, *Cyanerpes cyaneus*
Scarlet-thighed Dacnis, *Dacnis venusta*
Blue Dacnis, *Dacnis cayana*
Streaked Saltator, *Saltator striatipectus*
Buff-throated Saltator, *Saltator maximus*
Bananaquit, *Coereba flaveola*
Yellow-faced Grassquit, *Tiaris olivaceous*
Grey-headed Tanager, *Eucometis penicillata*

White-shouldered Tanager, *Loriotus luctuosus*
Tawny-crested Tanager, *Tachyphonus delatrii*
White-lined Tanager, *Tachyphonus rufus*
Lemon-rumped Tanager, *Ramphocelus dimidiatus*
Variable Seedeater, *Sporophila corvina*
Saffron Finch, *Sicalis flaveola*
Blue-gray Tanager, *Thraupis episcopus*
Palm Tanager, *Thraupis palmarum*
Golden-hooded Tanager, *Stilpnia larvata*
Bay-headed Tanager, *Tangara gyro*
Emerald Tanager, *Tangara florida*
Silver-throated Tanager, *Tangara icterocephala*
Plain-colored Tanager, *Tangara inora*

MAMMALS

Opposums - Didelphidae

Common Opposum, *Didelphis marsupialis*
Central American Woolly Opossum, *Caluromys derbianus*

New World Anteaters - Myrmecophagidae

Northern Tamandua, *Tamandua mexicana*

Two-toed Sloths - Megalonychidae

Hoffman's Two-toed Sloth, *Choloepus hoffmani*

Three-toed Sloths - Bradypodidae

Brown-throated Three-toed Sloth, *Bradypus variegatus*

Armadillos - Dasypodidae

Nine-banded Armadillo, *Dasypus novemcinctus*

Sac-winged Bats - Emballonuridae

Proboscis Bat, *Rhynchonycteris naso*

Lesser White-lined Bat, *Saccopteryx leptura*



Geoffroy's Tamarin
Photo By Howard Topoff

Chestnut Sac-winged Bat, *Camura brevirostris*

Leaf-nosed Bats - Phyllostomidae

Great Fruit-eating Bat, *Artibeus lituratus*

Jamaican Fruit-eating Bat, *Artibeus jamaicensis*

Common Tent-making Bat, *Uroderma bilobatum*

Free-tailed Bats - Molossidae

Little Mastiff Bat, *Molossus molossus*

Tamarins/Marmosets - Callitrichidae

Geoffroy's Tamarin, *Sanguinus geoffroyi*

Night Monkeys - Aotidae

Panamanian (Western) Night Monkey, *Aotus zonalis*

Cebid Monkeys - Cebidae

White-faced Capuchin, *Cebus capucinus*

Howler Monkeys - Atelidae

Mantled Howler, *Alouatta palliata*

Squirrels - Sciuridae

Red-tailed Squirrel, *Sciurus granatensis*

Agoutis - Dasyproctidae

Central American Agouti, *Dasyprocta punctata*

Rabbits - Leporidae

Forest Rabbit, *Sylvilagus gabbi*

Raccoons and Allies - Procyonidae

Crab-eating Raccoon, *Procyon cancrivorus*

White-nosed Coati, *Nasua narica*

Weasels & Allies - Mustelidae

Tayra, *Eira barbara*

AMPHIBIANS AND REPTILES

Toads - Bufonidae

South American Common Toad, *Rhinella alata*

Cane Toad, *Rhinella marina*

Glass Frogs - Centrolenidae

Fleischmann's Glass Frog, *Hyalinobatrachium fleischmanni*

Slope-snouted Glass Frog, *Cochranella euknemos*

Chirripo Bare-hearted Glass Frog, *Hyalinobatrachium chirripoi*



Glass Frog
Photo By Howard Topoff

Rain Frogs - Craugastoridae

Banded Rain Frog, *Pristimantis taeniatus*

Fitzinger's Robber Frog, *Craugastor fitzingeri*

Slim-fingered Rain Frog, *Craugastor crassidigitus*

Dart Poison Frogs - Dendrobatidae

Rainforest (Striped) Rocket Frog, *Silverstoneia flotator*

Green-and-black Poison Frog, *Dendrobates auratus*

Rain Frogs - Eleutherodactylidae

Common Dink Frog, *Diasporus diastema*

Treefrogs - Hylidae

Red-webbed (Canal Zone) Treefrog, *Hypsiboas rufitelus*

Red-eyed Treefrog, *Agalychnis callidryas*

Foam Frogs - Leptodactylidae

Tungara Frog, *Engystomops pustulosus*

Pond Turtles - Emydidae

Meso-American Slider, *Trachemys venusta*

Casque-headed Lizards - Corytophanidae

Common Basilisk, *Basiliscus basiliscus*

Anoles - Dactyloidae

Stream Anole, *Anolis oxylophus*

Slender Anole, *Anolis limifrons*

Iguanas - Iguanidae

Common Green Iguana, *Iguana iguana*

Geckos - Gekkonidae

Common House Gecko, *Hemidactylus frenatus*

Geckos - Phyllodactylidae

Turnip-tailed Gecko, *Thecadactylus rapicauda*

Geckos - Sphaerodactylidae

Yellow-headed Geckos, *Gonatodes albogularis*

Whiptails and Tegus - Teiidae

Central American Ameiva, *Holcosus festivus*

Colubrid Snakes - Colubridae

Checkerbelly Liana Snake, *Siphlophis cervinus*

Pit Vipers - Viperidae

Fer-de-lance / Terciopelo, *Bothrops asper*

Crocodilians - Crocodylidae

Spectacled Caiman, *Caiman crocodilus*

American Crocodile, *Crocodylus acutus*



Biomuseo
Photo By Carol Simon



The End
Photo By Howard Topoff

