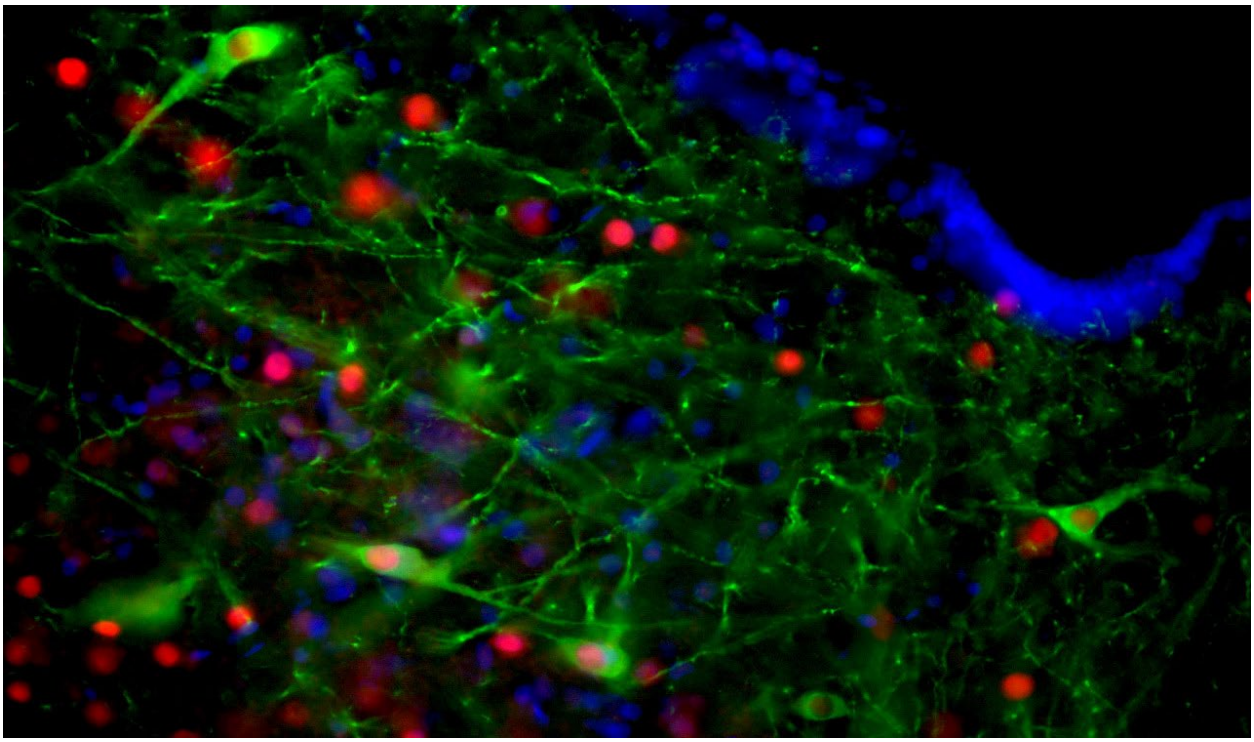
Goodson Prize for Art in Science



Dr. Jim Goodson (1965 – 2014) was a vibrant and integral part of the CISAB community. A consummate neuroscientist and critical thinker, Jim was also extraordinarily gifted at capturing the beauty of his science via images, of both his study subjects and his histological material. These striking images graced the covers of many journals and made for beautiful artwork on the walls of Jim's lab. Jim happily spent hours at the microscope in pursuit of the image that would bring his science to life. His images of the brain were not only stunningly beautiful, but also tremendously effective in communicating the complexity and organization of the nervous system.

This image was generated in a study examining the activation of dopamine (DA) neurons in response to social stimuli. Cells in the midbrain central gray (CG) of a male zebra finch are double-labeled for tyrosine hydroxylase (green), to visualize dopamine neurons, and c-Fos (red), which serves as a proxy for neural activity. Green cells with red puncta are DA neurons that were activated when a 'courting' male zebra finch was exposed to a female. This level of dopaminergic activation was not observed upon exposure to a positive, non-social stimulus. Jim's study helped to illuminate how different populations of DA cells reflect social phenotype, with the CG being an area tightly linked with appetitive courtship behavior.

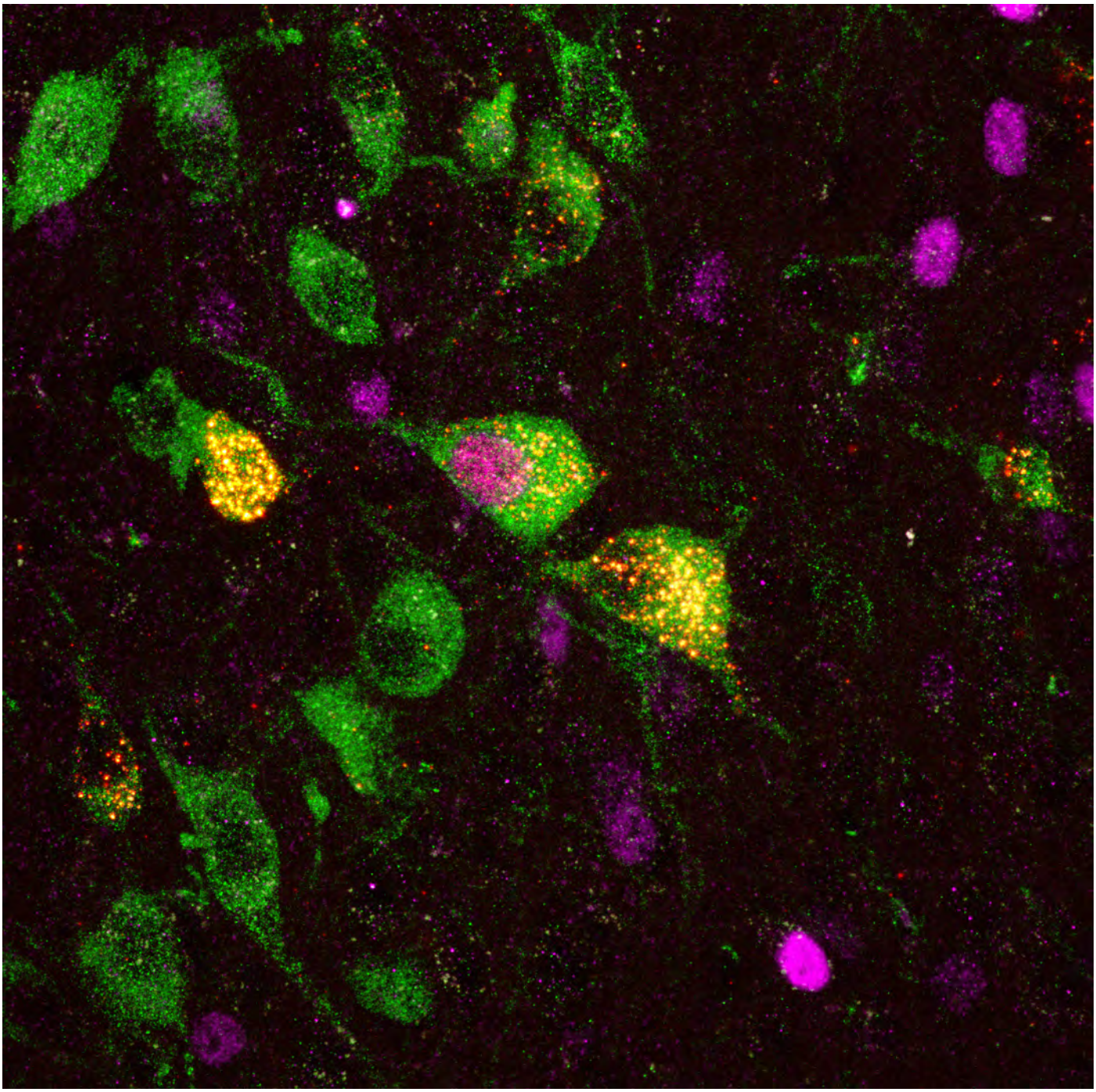
2016 Winner: Dr. Eduardo Zattara

"Ready to see the light"

Technique: Dissected nervous system/eyes immunolabeled against acetylated tubulin (red channel) and serotonin (green channel), and counterstained with a DNA label (blue channel). Imaged as a whole-mount with a Zeiss LSM 880 laser scanning confocal microscope at the Light Microscopy Imaging Center core, Department of Biology, Indiana University Bloomington.

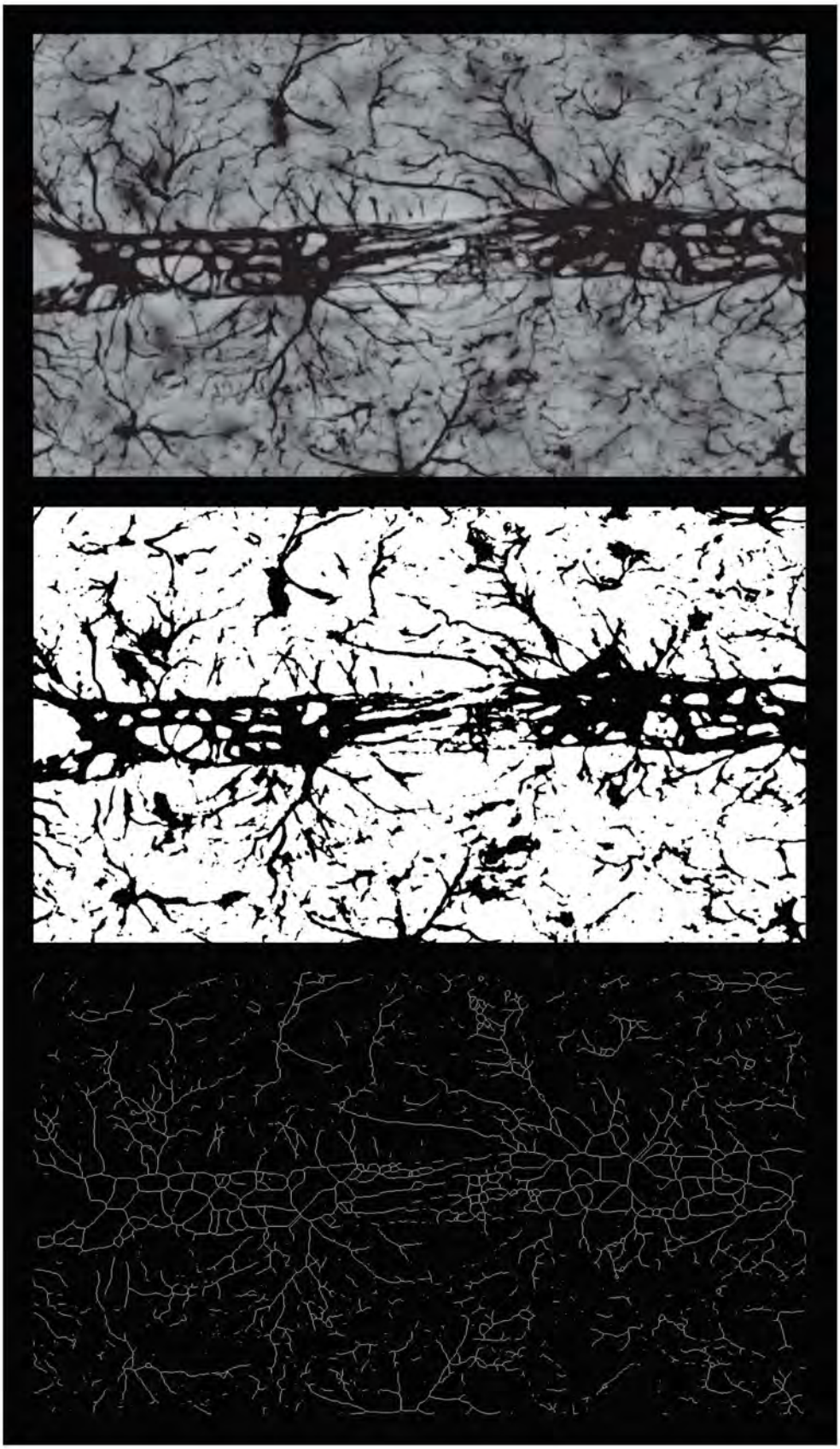
Description: Central nervous system and eye complex of the late pupa of the dung beetle Onthophagus sagittarius. As other species of tunneling dung beetles, females of this species lay eggs inside a custom-built dung brood-ball underground; from the egg hatches a larva which will remain inside the brood-ball and feed from it until it molts into a pupa in order to undergo metamorphosis into the adult form. During this process, a prominent optic lobes grow and extend into the forming compound eyes so that upon adult emergence, the beetle is fully ready to dig itself out of the ground and into an open world of light and color.

2018 Winner: Chris Petersen



Description: The goal of this study was to provide the anatomical substrate of serotonin release into the auditory midbrain. This photomicrograph depicts context-dependent activation (majenta) of serotonin neurons (green) that project to the inferior colliculus (red beads).

2018 Runner-up: Justin Bollinger



Description: This image depicts a blood vessel within medial prefrontal cortex (mPFC), ensheathed by astrocytes and astroglial processes (top; visualized using GFAP immunohistochemistry). Astrocytes play a critical role in maintaining blood-brain barrier integrity, regulate neuronal transmission, and have been implicated in numerous behavioral processes. Perturbations in mPFC can induce shifts in astroglial structure and function. To characterize changes in astrocyte morphology, I measure the amount of astroglial material (middle), astroglial branching, and the length of astroglial processes (bottom) present in images captured from mPFC.

2018 Runner-up: Stephanie Campos

“The Contender: A Bouquet Thornier Than Roses.”

Description: It took me six years and nearly a PhD to capture this photo, a rare site to behold. This photo shows secretions being exuded from three pores on a lizard’s thigh, but secretions are usually rubbed off as lizards move around their territories. While Sceloporus lizards are perhaps best known for the vibrant technicolor belly patches they flash and vibrate to intimidate competitors, the genus is actually named for these scent-emitting pores (from the Greek “skelos” and “poros” translating to “leg pore”). My doctoral thesis investigates the evolution of chemical signal design and content in Sceloporus femoral pore secretions, demonstrates their impact on lizard space use and chemosensory behavior, and links composition to phenotypic traits of individuals.

2019 Winner: Elizabeth M. George

Description: A dynamic image showing a tree swallow attacking a perceived intruder at its nest box. As a graduate student in the Rosvall lab, Elizabeth studies mechanisms of aggression in tree swallows, a songbird species that faces intense competition for nesting sites. She took this photo during a simulated territorial intrusion--a behavioral assay that involves placing a taxidermic mount at the entrance of a nest box to simulate a social challenge from a competitor. This bird is aggressively approaching the perceived intruder.

2019 Runner-up: Kara Hodges

Description: Kara Hodges's (Biology, Illinois State University) photo of a sample of house wren eggs shows the wide individual variation in eggshell pigmentation within a species. Some studies suggest a link between eggshell pigmentation and fitness metrics of the laying female and/or the parental investment of the attending male.

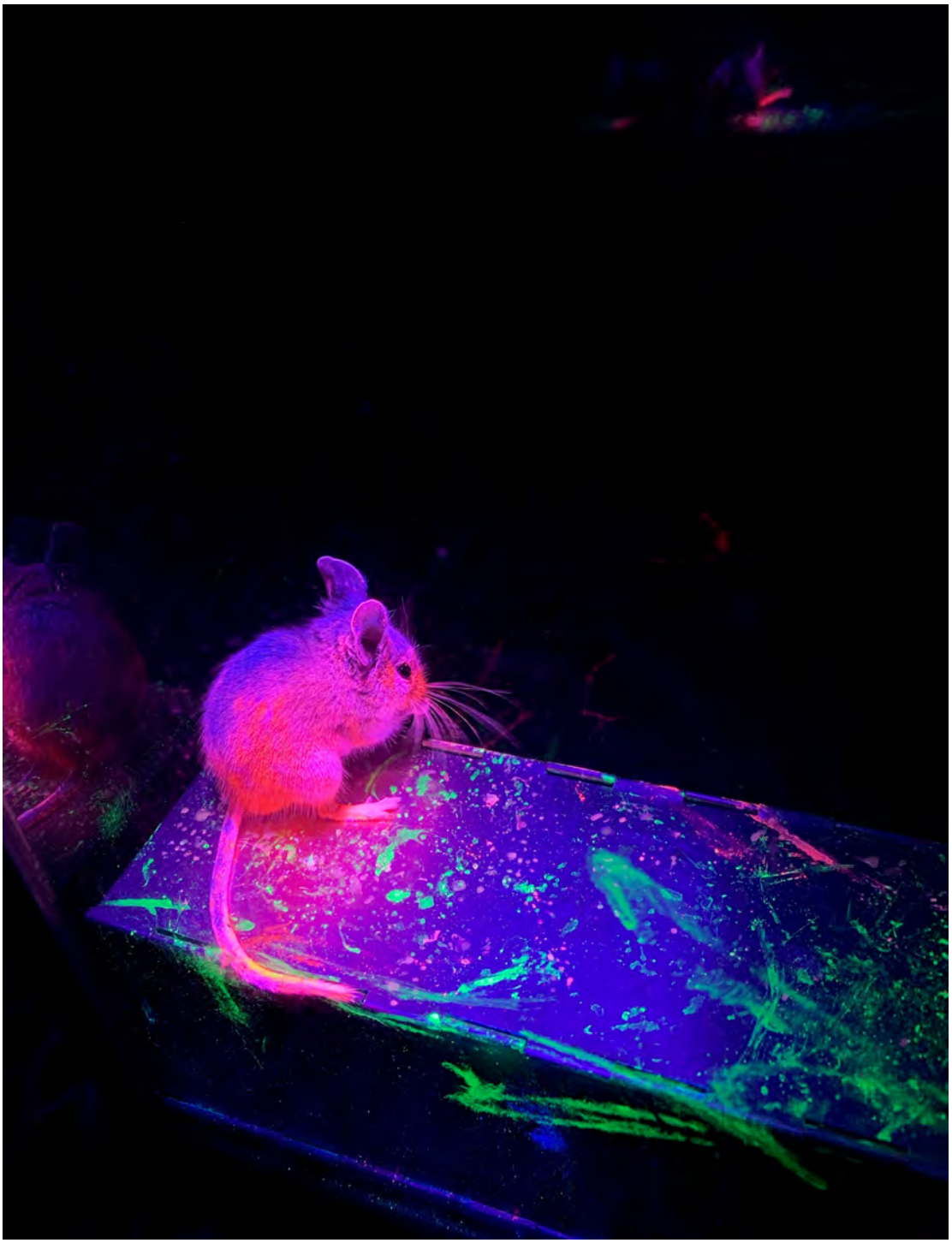
2021 Co-winner: Stacey Tecot

Description: A fossa drinking from a dish washing station at Ankoatsifaka Research Station in Madagascar. During drought years, fossa such as this one come into the camp in search of water.

2021 Co-winner: Rubens Turin

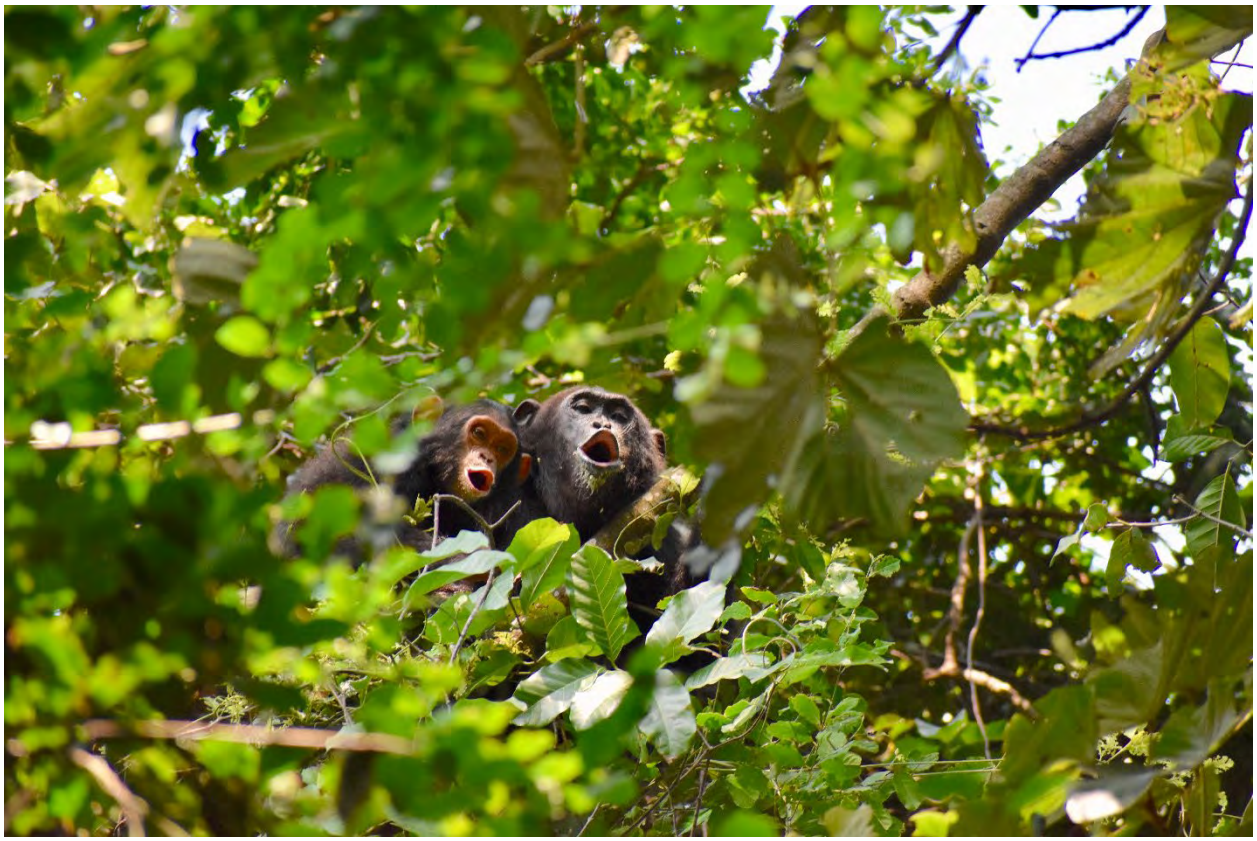
Description: A gladiator tree frog, shot in the Serra da Canastra National Park during field work investigating variations in the tree frog's advertisement calls.

2021 Runner-up: Gretchen Andreasen



Description: Gretchen Andreasen's image of a woodland deer mouse covered in non-toxic fluorescent powder. Gretchen used this powder and UV light to track the mouse's path through the woods during escape behavior.

2023 Winner: Kevin Hunt



Description: Grace and son Gusker pant-hoot in greeting as Gusker's father Tusker approaches through the tree canopy in this image from Semliki, Uganda, July 2022. Female chimpanzees, while quite social, are compelled by feeding competition to spend two-thirds of their time away from other adults, accompanied only by their offspring. Males form large groups and range more widely. Some males form special friendships with females and spend time with them. Tusker often spends a day or two each month socializing with Grace before moving off to rejoin male groups.

2023 Runner up: Maelle Lefeuvre

Description: Science is also about sharing. This hawfinch (Coccothraustes coccothraustes) was caught and presented during a ringing session at my university in Krakow, Poland. This session was open to Ukrainian refugee children to forget the war for a moment and learn more about birds. The children discovered the biology of the species as well as the softness of the bird's feathers. It was a peaceful moment out of time, all about sharing and fascination.

2025 Co-winner: Emily Hibbard

Description: Limb movement in vertebrates requires connection of spinal motor neurons to specific muscles, and injuring these connections impairs movement. This image of a rat spinal cord depicts motor neurons projecting to the anterior tibialis muscles through the uninjured (right) and injured (left) sciatic nerves. After recovery, labeling of neurons on the injured side extends beyond the area of label found on the intact side, revealing that the axons of these neurons have regrown, but to an incorrect muscle. Despite extensive misconnections, the animal exhibited remarkable locomotor recovery.

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2025 Co-winner: Emmy James

Description: Emma took this image at her field site in Knoxville, TN, capturing adult tree swallows (Tachycineta bicolor) building a nest for their chicks. Nests are vital for helping altricial chicks thermoregulate, so nest-building is crucial for offspring survival. Three adults are pictured together at the nestbox, capturing the complex interactions that often affect thermoregulation.