

Nature Trails

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The Eugene Natural History Society is based out of the traditional homelands of the Kalapuya peoples, most of whom are citizens of the Confederated Tribes of Grand Ronde and the Confederated Tribes of Siletz Indians. These Indigenous people stewarded this land for millennia and continue to play an active role in local communities. We commit to supporting the many Tribes and Indigenous scholars and organizations working to shape the future of these lands and waters that we mutually cherish.



Northern Red-shafted Flicker. *Paul Bannick*

A Year in the Life of North American Woodpeckers

Paul Bannick

**Author, Photographer
Seattle, WA**

**Friday
12 December 2025
7:00 pm**

Cosponsored with the Coast to Cascades Bird Alliance

This month's meeting will be a hybrid of in person and real-time Zoom. The in-person lecture will be held at **7:00** in **221 Allen Hall, University of Oregon campus.** **Snacks provided!** The Zoom lecture link is <https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09> or see our website at <https://eugenenaturalhistorysociety.org/>

This Month's Speaker: Paul Bannick



I was able to have a phone chat with Paul Bannick, photographer and author, while he was driving home from a day in the field. Paul has written four books and just finished a fifth, all on owls and/or woodpeckers and all featuring photography by the author. Paul was driving while he chatted hands free, while I sat comfortably in front of my computer at home. But it was still difficult for me to keep up with him. I was also a little self-conscious because I know next to nothing about birds, not to mention owls and woodpeckers.

In these interviews, one of the things I am most interested in is how/why/when the speaker decided what to do with their life, and in the case of biology, how they came to be interested in a particular group of organisms that first caught their attention. In Paul's case, I assumed owls or woodpeckers were his first love, but curiously enough it was amphibians, and at the top of his list was the Oregon giant salamanders (*Dicamptodon*), and we chatted briefly about why it is so much harder to find metamorphosed adults than to find larvae. Aha: something in common! I credit my irrational fascination with salamanders for planting me on the biologist path (in fact, it was a particular species: the Oregon Clouded Salamander, *Aneides ferreus*). But Paul's earliest attraction was broader: the interrelationships of the organisms he found.

Still, when pushed, he admitted that it was really an odd-looking "robin," which he learned was a Northern Flicker, that triggered his interest in woodpeckers, an interest that grew as he realized that this group of birds is probably the most important catalyst for turning a forest into a working ecosystem.

Paul grew up in Bellevue, WA (a suburb of Seattle), where (when playing hooky from church) he was wandering through fields and woods, drawing pictures of the critters he found. He recalls becoming aware of how commercial development and human activity were destroying local ecosystems. He grew up in a Catholic family and was one of 13 kids. His parents were supportive of his wildlife interests but, like parents everywhere, were prudently concerned about how he was to make a living. They specifically warned him about the dangers of becoming a biology teacher and that there was no money in being a biologist. (My parents told me the same thing, convincing me to enroll in the pre-veterinary program in college, a fate which, luckily, I was able to avoid!) Paul's father was a writer and photographer and helped him produce his own illustrated field guides and books as a young teenager.

Being from a family of modest means, he was used to working from an early age and worked his way through college, getting a degree in business. After college he went to work for Aldus, a software company known for developing software for desktop publishing. Eventually, Aldus merged with its rival Adobe, which fed Paul's interest in art and photography. Paul also got to know the founder of Aldus, who turned him on to conservation issues, and after 12 years Paul left to work for nonprofit conservation organizations, which he has done for the last 20 years.

Soon Paul began attracting attention for his photography of birds, and one of his friends, Peter Jackson (son of the Washington congressman and presidential candidate Henry "Scoop" Jackson), encouraged him to try writing an illustrated book. His advice was to write up a specific book idea (prospectus) and send it directly to a publisher.

Paul said he consciously decided to focus on birds, especially on owls ("owls of the night") and woodpeckers ("owls of the morning"), partly because he felt that they are more conspicuous residents of familiar habitats and resonated more with people than, for example, amphibians. In fact, many birds (especially the more conspicuous ones) are a visual representation of ecosystem diversity—"archetypes for habitat type"—even where the environment looks

homogeneous to the untrained eye. Unlike amphibians, birds “almost beg to be noticed” and can serve as a gateway for anyone to become aware of and interested in the importance of ecosystem diversity and conservation. As easily seen representations of niches, birds serve as ecosystem “flags.” As Paul puts it, the purpose of his books is to give words to those flags. His latest book is *Woodpecker: A Year in the Life of North American Woodpeckers*.

We are pleased that Paul will be our December speaker (cosponsored with the Coast to Cascades Bird Alliance). Here is what he says about his upcoming presentation:

Woodpeckers are the heart of North American forests in many ways. Their distinctive drumming sounds out a familiar rhythm, while their presence supports owls and myriad other creatures. They have evolved in ways that make them ecologically critical to forest health, serving as keystone species in a variety of wooded habitats across the continent. I explore the often-secret lives of woodpeckers from Alaska’s boreal forests to the oak woodlands of the West and Midwest and from the ribbon of ponderosa pine habitat that stretches from British Columbia through much of the western states until the transition in southern Arizona to the Sierra Madre pine-oak habitat that forms the spine of Mexico. I also examine the diversity in arid ecosystems straddling the US–Mexico border and the wet tropical habitats from Florida through the Caribbean Islands and southeastern Mexico. Through first-hand experiences, more than 200

never-before-published photographs, and the latest science, I showcase woodpeckers in every season: their courtship and nest selection in spring, life in the nest during summer, fledging and gaining independence in autumn, and the challenges of surviving the winter. I also take a closer look at the most important woodpecker habitats in North America and what we can do to protect them.

Join us on Friday, 12 December at 7:00 pm in room 221 Allen Hall on the University of Oregon campus. After his presentation, Paul will have his books available for signing. The cookies also will be there.

If you can’t join us in person, by all means connect on Zoom:

<https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUeJuU21wT20rdz09> or join from

our website at

<https://eugenenaturalhistorysociety.org/>

—Stan Sessions



Acorn Woodpecker. Paul Bannick

Evolution’s Arrow by Chuck Kimmel

Let me start this essay by asking a question, and I warn you at the outset: it’s a trick question. Consider the three major groups of mammals: the placentals (which nourish their young in the uterus via a placenta), the egg-laying monotremes, and the pouch-brooding marsupials. Which of the three do you imagine is the most primitive (primitive meaning similar to the ancient mammalian ancestor), and which do you imagine is the most advanced?

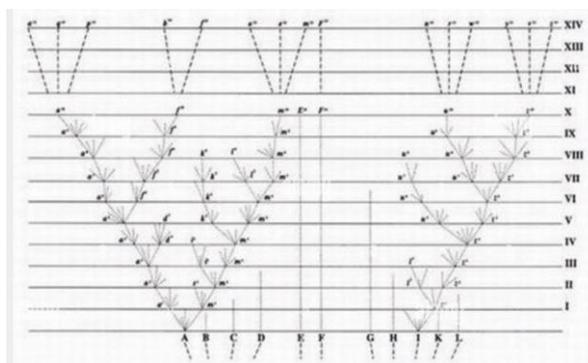
It would be fun for me if you pondered that question before reading on, wrote down your

response (answer), and sent it to me by email: chbkimmel@gmail.com.

The trick is in the word “advanced.” If you were to imagine an archer practicing shooting arrows at a target, you can use the word “advanced” comfortably. The archer releases the arrow. Time advances during the course of the arrow’s flight, and unless the archer is quite terrible, the arrow progresses (advances) toward the target. Back in the day (that is, before Darwin), learned persons, if they thought of evolution at all, thought of evolution much like the path of the arrow toward the target. Folks such as Jean-Baptiste Lamarck based this view

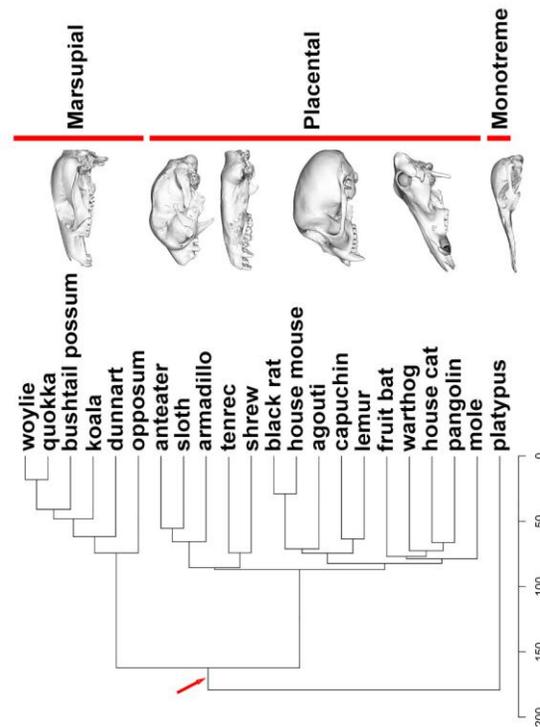
on the ancient “great chain of being” coming from the Greeks and elaborated greatly in the Middle Ages. Life, that is evolution, was thought to progress in complexity along a ladder-like path with humans near the top rung of course. The advance, in the old view, was toward God—who was somehow positioned above the ladder. Later anti-Darwinian scholars near the end of the 19th century still thought of evolution in roughly this way. Even later, the idea that evolution “advances” did not entirely disappear. When I was a graduate student more than 60 years into the 20th century, I was influenced by the writings of a Jesuit, Pierre Teilhard de Chardin; he taught that evolution is directed. But Ernst Mayer, writing in 1948, argued perhaps most clearly of anyone against an “arrow” of evolution; Darwinian natural selection does not require some kind of mysterious guiding force.

Darwin’s famous 1859 work, *The Origin of Species*, changed our picture of life and evolution forever. He presented an altogether different view, supported by the only figure in his book that I reproduce here—not a line or ladder but a tree-like branching structure.



From Charles Darwin, *The Origin of Species*, 1859

Still, we have come a long way since Darwin. The prominent vertical axis of a tree, with upper branches growing upward, “advancing” toward the sun, might be misinterpreted in the way I am arguing against. Compare Darwin’s tree with the more horizontal view of an evolutionary pattern in a cladogram (diagram of the relationships among groups [clades]) that I modified from a 2023 comparative study of mammalian skulls published as “Pedomorphosis in the Ancestry of Marsupial Mammals” by Heather White and colleagues working in London. Branching is still prominent.



Modified from White et al., Pedomorphosis in the Ancestry of Marsupial Mammals, 2023

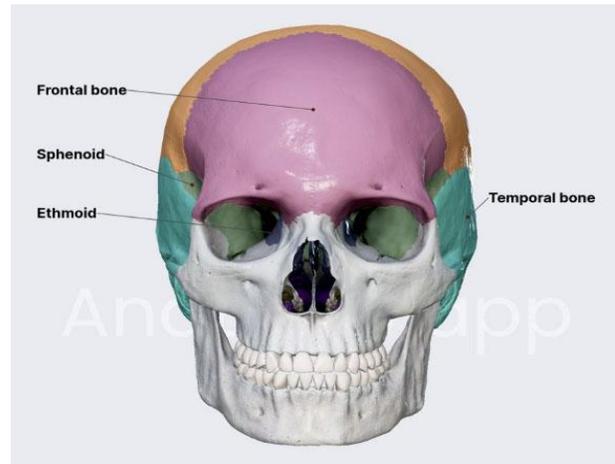
The vertical axis of the plot still shows evolutionary time, but the spread of the diagram along the horizontal axis shows evolutionary disparities: differences among the species, not evolutionary progress or complexity. Think a derived rather than advanced pattern. In fact, it was the White et al. study that motivated this article and my question to you at its beginning. Let’s try to remove the trick and ask our question in language that is less loaded: Which of the three mammalian groups shows the more derived skull pattern? What would you say? I admit I would have guessed placentals. Some out-of-fashion thinking on my part here: our skulls are “better” than their skulls. But the study by White et al. suggests that I would have gotten it wrong. Marsupials, not placentals, are the more derived. My goodness! A take home: evolution’s arrow is not shot at a target. Evolution’s arrow is shot down.

This comment concludes what I wanted to write about the arrow. But as a very interesting extended addendum, we might ask how in the heck did those creatures do it? I mean how did possums and their relatives beat our group in divergent skull evolution? A hypothesis is in the title of the White et al. paper. This answer is

mighty cool to a person like me who studies the evolution of development (“evodevo” as it’s called in the trade). Pedomorphosis: pedo = baby, morph = form. A pedomorphic adult skull retains features of the juvenile. The opposite condition is peramorphosis, where features are more highly developed, not less, relative to an ancestor. Comparative studies help us understand the difference. Compared with our chimp-like ancestors, our own heads are small jawed and large brained. These are features of juvenile humans and juvenile chimps alike. The pedomorphic adult human skull retains juvenile characteristics of the group. In contrast, the giraffe’s neck, reaching up to 8 feet long, amazingly has the same number of neck vertebrae as you and I have: seven, as do platypuses and nearly all mammals. The giraffe’s close relative, the okapi, which serves as a model for the giraffe ancestor, also has seven. However, in the peramorphic-necked giraffe, the growth period of the neck vertebrae themselves is extended compared with that of the okapi, and the seven individual neck bones can reach 8 inches or more in length. Incidentally, this magic number of seven is for mammals uniquely. Snakes, which can have hundreds of vertebrae in all, have only two neck vertebrae, which are specialized for connection to the skull. And in a nod to the ENHS bird month of December, I mention that the neck of a swan has 24 or 25 neck vertebrae. We can imagine that the swan’s neck is much more graceful than that of a giraffe.

Back to the point of this essay. White and colleagues used detailed measurements of the skull shape–size relationships of 162 developing individual skulls, sampling the 22 species shown in their cladogram. The part of the skull they found informative is the cranial vault. This region is supported mainly by the frontal forehead bone, as you can see for the familiar human skull.

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Human skull. Google image from anatomy.app

The frontal bone and its surrounding bones make up the cranial vault in all mammals. The vault in adult marsupials is moderately rounded. However, in adult placentals, the vault is diverse in shape, narrow in some species and very rounded in others. These shapes are determined during development. Marsupials as a group have a nearly singular developmental pathway. Fantastically, the shape of their cranial vault does not change as the skull undergoes a relatively long period of growth in size before reaching maturity. The marsupial skull retains the shape of the juvenile: pedomorphosis. In contrast, White and colleagues observed that placental skulls typically change in shape markedly during development along different trajectories for different species. There was no consistent signal of either pedomorphosis or peramorphosis.

Based on the phylogeny shown in the cladogram, the authors projected the developmental patterns back in evolutionary time to the ancestors of interest, particularly the common ancestor of the marsupials and placentals (the arrow on the cladogram). Interestingly, the outgroup of this ancestor, the egg-laying platypus, although not so well studied in this analysis, showed peramorphosis, not pedomorphosis.

To the point of the White et al. study, there was no difference between the computed features of the common marsupial-placental ancestor and the descendant ancestor of all the placentals. However, there was a substantial difference between the descendant ancestor of all the marsupials and the common ancestor of both

groups. The marsupial ancestor was projected to be pedomorphic, whereas the common ancestor and the descendant placental ancestor showed

neither pedomorphosis nor peramorphosis. Pretty tricky of those marsupials!

Stay tuned for information on an upcoming field trip, probably in January!

In September we joined Joe Moll to visit the MRT restoration project at Quartz Creek. Then it was dry, but now it's wet! As the rains have filled the rivers and creeks, we want to see how the project is working.

Upcoming Events

(for complete listings and details, see individual websites)

- **McKenzie River Trust** <https://mckenzieiver.org/events/#event-listings> or 541-345-2799
Wednesdays, 9–11:30am. Watershed Wednesdays at Green Island. Projects include invasive species removal, habitat care, planting, and tree establishment. [Sign up](#)
First Fridays, Oct.–June. Explore the Willamette Confluence. See the MRT website for more information.
Second Saturdays, Mar.–Dec., 8am–4pm. Living River Exploration Day at Green Island. We open the gates to this conservation area and welcome our community to explore this special place. Free, no preregistration.
- **Native Plant Society of Oregon, Emerald Chapter** <https://emerald.npsoregon.org/>
Anytime. Self-guided Tour of Laurelwood Bog. Go south on Agate St in Eugene to the dead end at 29th. The entrance to the Bog is clearly signed, and the trails are covered with bark.
Monday, 15 Dec., 7–9pm. December Holiday Social. Share photos and stories of wildflower destinations from the past year. Bring 10-15 slides on a flash drive and a snack to share. Amazon Community Center, 2700 Hilyard St., Eugene.
- **Mt. Pisgah Arboretum** <https://mountpisgaharboretum.com> or 541-747-3817.
Sunday, 7 Dec., 10am–noon. Mushroom Folk Family Tour. We will read from *Tales of the Mushroom Folk* by Signe Aspelin, a whimsical story of tiny creatures within the fungal world. We will then walk among the Arboretum habitats, search for fungi friends, and learn about their importance in the web of life. Geared for families and kids. Meet at the Arboretum Education Center, rain or shine. Limited to 13 attendees. Preregistration required. [Click here](#) to register.
Sunday, 14 Dec., 9–11:30am. December Bird Tour. Join Mieko Aoki and Julia Siporin for another monthly bird tour intended for people with all levels of birding experience. We'll use vocalizations, habitat, and behavior clues for identification of our year-round and winter residents. Please bring binoculars. Meet at the Education Center, rain or shine. Don't forget your parking pass. Limited to 18 attendees. Fee \$5, FREE for Arboretum members. Preregistration required. [Click here](#) to register.
- **Coast to Cascades Bird Alliance** www.laneaudubon.org or 541-485-BIRD; maeveanddick@q.com or 541-343-8664
Saturday, 6 Dec., 8–11am. First Saturday Bird Walk. For more info, contact Sarah: 1satbirdwalks@ccbirdalliance.org.
Friday, 12 Dec., 7–9pm. A Year in the Life of North American Woodpeckers. Presenter: Paul Bannick. Joint meeting with ENHS. 221 Allen Hall, UO campus.
Sundays, 14 and 28 Dec., all day. Christmas Bird Counts, Florence and Eugene. To join on one or both count days, email Vjera Thompson, eugenechristmasbirdcount@gmail.com. To volunteer to be a home counter for the Eugene CBC, email Marcia Maffe, birds2count@gmail.com.
- **Museum of Natural and Cultural History, University of Oregon** <https://mnch.uoregon.edu/museum-home>
Ongoing exhibits: Oregon—Where Past Is Present; Explore Oregon; Roots and Resilience: Chinese American Heritage in Oregon; Transgressors (current and future Indigiqueer ancestors who move beyond boundaries in life and art).
Thursdays in December, 4:30pm. Holiday Nights at the Museum.
Thursday, 11 Dec., 4:30–7:30pm. The Art of Science and Culture. Support local artists and authors and learn about how art, science, and culture intertwine. Snacks and cider provided.
- **Nearby Nature** <https://www.nearbynature.org/> or 541-687-9699, 622 Day Island Rd., Eugene (Alton Baker Park)
Monday, Wednesday, Friday mornings. Wonder Keepers. Preschool program outdoors in our Learnscape.
Tuesdays and/or Fridays afternoons. Natural Neighbors. After-school program outdoors in our Learnscape.
Tuesday, 9 Dec., 10–11:30am. Green Start Play Day: Snow Storm. This month we'll be learning about winter weather! Kids 5 and under only, with an adult. Members FREE, nonmembers \$10/family. Pre-register online.
- **Lane Country Butterfly Club** <https://www.lanebutterflies.org> (new website)
Thursday, 12 Feb., 7:15–9:00pm. Fenders Blue Butterfly. Presenters: Sophie Linden and Christine Calhoun. Learn about recovery efforts in and near west Eugene wetlands. Hilyard Community Center, 2580 Hilyard St., Eugene.

A Note to Our Members Regarding Dues

The ENHS Board has decided to raise membership dues. Our costs are increasing, and we can no longer meet our financial obligations with our previous dues structure (we have not raised dues since 2011). Our greatest expense after speaker honoraria is printing and mailing of *Nature Trails*, so please consider going paperless. Electronic *NT* documents are sent via email and include color photos and live links and can be printed at home.

Annual dues for ENHS membership are payable in September. Keep your copies of *NT* coming and support our efforts to provide fascinating natural history presentations every month and occasional field trips. You can renew and pay electronically at <https://eugenenaturalhistorysociety.org/join/annual-membership-payment/>.

ENHS MEMBERSHIP FORM

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Please choose how to receive *NT*: by e-mail ___ or by USPS ___
Remember: Electronic copies come to you in **color** with live links and save paper and postage!

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ANNUAL DUES:

Individual	\$25.00
Family	35.00
Life Membership	300.00
Other Contribution	_____

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ENHS
P.O. Box 5494
Eugene, OR 97405

Fill out the form or go to our website (see QR code below) to join; pay by check or electronically. Membership payments allow us to give modest honoraria to our speakers and pay for the printing and mailing of *Nature Trails*. Find us at:

<http://eugenenaturalhistorysociety.org/>
and
https://www.youtube.com/channel/UCEr_yzVh9lw9y-nLS_t94BVw



White-headed Woodpecker. *Paul Bannick*



Red-headed Woodpecker. *Paul Bannick*

Eugene Natural History Society
P.O. Box 5494
Eugene, OR 97405

Monthly meetings:

When: September–May: third Friday; December:
second Friday

Where: 221 Allen Hall (UO campus) and/or on
Zoom at

<https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUeJuU2lwT20rdz09>

Time: 7:00 pm

Parking for UO events is available at the UO
Physical Plant lot: From Franklin, turn north onto
Onyx, go 1 block to the lot. After 6pm, it's open to
the public.

See our website for more details.

<http://eugenenaturalhistorysociety.org/>

ENHS Officers and Board Members 2025–2026

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2025–2026 Speakers and Topics

19 Sept.	Joe Moll	The Audacity of Perpetuity: Land and Water Conservation in Uncertain Times
17 Oct.	Jamie Cornelius	Amazing Adaptations: How Birds Survive Stormy Weather
21 Nov.	Matt Betts	Can We Have Our Cake and Eat It Too? Conserving Forest Biodiversity in the Age of Humans
12 Dec.	Paul Bannick	A Year in the Life of North American Woodpeckers (cosponsored with the Coast to Cascades Bird Alliance)
16 Jan.	Marie Tosa	Spotted Skunks
20 Feb.	Leif Karlstrom	Giant Aquifer of the Cascades
20 Mar.	Anne Thompson	Marine Microbiology and Ecology
17 Apr.	Heron Brae	Oak Savannah Communities (cosponsored with the Emerald Chapter of the Native Plant Society of Oregon)
15 May	Samantha Hopkins	The Relationships among Paleontology, Climate Change, and Extinction