

2025 Feather Sampling Protocol

The Bird Genoscape Project welcomes feathers from **any migratory or resident species**, not limited to the lists below, collected any time of the year, including migration. If you would like to prioritize your efforts, the categories below list our species of emphasis:

Category I: Species for which we are currently building population-specific range maps. We are actively collecting samples from **1) Breeding & Wintering Grounds; 2) Migration:**

Alder Flycatcher	(ALFL)	Kentucky Warbler	(KEWA)
American Crow	(AMCR)	Least Flycatcher	(LEFL)
American Robin	(AMRO)	Lincoln's Sparrow	(LISP)
Baird's Sparrow	(BAIS)	Magnolia Warbler	(MAWA)
Bank Swallow	(BANS)	Mourning Warbler	(MOWA)
Bay-breasted Warbler	(BBWA)	Nashville Warbler	(NAWA)
Blackburnian Warbler	(BLBW)	Northern Saw-whet Owl	(NSWO)
Blackpoll Warbler	(BLPW)	Palm Warbler	(PAWA)
Black-throated Green Warbler	(BTNW)	Plumbeous Vireo	(PLVI)
Blue-headed Vireo	(BHVI)	Red-eyed Vireo	(REVI)
Boreal Chickadee	(BOCH)	Ruby-crowned Kinglet	(RCKI)
Brewer's Sparrow	(BRSP)	Swainson's Warbler	(SWWA)
Brown Creeper	(BRCR)	Tennessee Warbler	(TEWA)
Cape May Warbler	(CMWA)	Warbling Vireo	(WAVI)
Cassin's Vireo	(CAVI)	Western Meadowlark	(WEME)
Chestnut-collared Longspur	(CCLO)	Western Tanager	(WETA)
Chestnut-sided Warbler	(CSWA)	White-throated Sparrow	(WTSP)
Connecticut Warbler	(CONW)	Wood Thrush	(WOTH)
Eastern Meadowlark	(EAME)	Worm-eating Warbler	(WEWA)
Evening Grosbeak	(EVGR)	Yellow-billed Cuckoo	(YBCU)
Golden-crowned Kinglet	(GCKI)	Yellow-bellied Flycatcher	(YBFL)
Hairy Woodpecker	(HAWO)	Yellow-bellied Sapsucker	(YBSA)
Horned Lark	(HOLA)		

Category II: Species for which we are primarily working on wintering assignments of populations. We actively need samples primarily from the wintering grounds only:

American Kestrel	(AMKE)	Loggerhead Shrike	(LOSH)
American Redstart	(AMRE)	Painted Bunting	(PABU)
Black-throated Blue Warbler	(BTBW)	Swainson's Thrush	(SWTH)
Canada Warbler	(CAWA)	Veery	(VEER)
Common Yellowthroat	(COYE)	Willow Flycatcher	(WIFL)
Dark-eyed Junco (all subspecies)	(DEJU)	Wilson's Warbler	(WIWA)
Grasshopper Sparrow	(GRSP)	Yellow-breasted Chat	(YBCH)
Hermit Thrush	(HETH)	Yellow-rumped Warbler	(YRWA)
		Yellow Warbler	(YEWA)

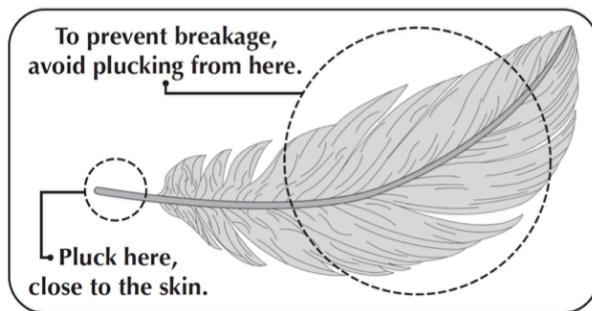
Category III: Species for which we will build population-specific range maps as funding becomes available. We are actively collecting samples from all stages of the annual cycle:

Bendire's Thrasher	(BETH)	Northern Waterthrush	(NOWA)
Bobolink	(BOBO)	Orange-crowned Warbler	(OCWA)
Black-and-white Warbler	(BAWW)	Ovenbird	(OVEN)
Black-headed Grosbeak	(BHGR)	Pine Siskin	(PISI)
Black-capped Chickadee	(BCCH)	Philadelphia Vireo	(PHVI)
Blue Grosbeak	(BLGR)	Prothonotary Warbler	(PROW)
Carolina Wren	(CARW)	Rufous Hummingbird	(RUHU)
Clay-colored Sparrow	(CCSP)	Rusty Blackbird	(RUBL)
Fox Sparrow	(FOSP)	Song Sparrow	(SOSP)
Gray Catbird	(GRCA)	Snow Bunting	(SNBU)
Henslow's Sparrow	(HESP)	Sprague's Pipit	(SPPI)
Hooded Warbler	(HOWA)	Summer Tanager	(SUTA)
Indigo Bunting	(INBU)	Thick-billed Longspur	(TBLO)
LeConte's Sparrow	(LCSP)	Virginia's Warbler	(VIWA)
MacGillivray's Warbler	(MGWA)	Western Grebe	(WEGR)
Mountain Chickadee	(MOCH)	White-crowned Sparrow	(WCSP)
Mountain Plover	(MOPL)	White-eyed Vireo	(WEVI)
Northern Shrike	(NSHR)	Winter Wren	(WIWR)

Feather Collection, Metadata, and Shipping Instructions

When tail feathers are pulled, a small amount of skin cells remain attached to the tip of the calamus. These skin cells are a valuable source of DNA that can then be used to determine the population origin of an individual bird. Moreover, a portion of the feather itself can also be used for stable isotope analyses, which alludes to the location (at least latitude) where the feather was grown. We recommend that two tail feathers be collected during the banding process from each bird (see below). If body feathers must be collected for certain species, such as larger birds of prey, 10-15 body feathers are needed. **There is no need to collect feathers from the same individual more than once during the same season.**

How To and Handling:



Before taking any feather samples, make sure that your hands are clean or sanitized, if needed, from a previous bird.

To collect a sample, pluck one central and one outer tail feather (e.g., R1 & R6). To pluck the feathers, hold them firmly, relatively close to the base, and pull gently. *See illustration.* Collecting both of one rectrice, either R1 or R6, is also fine.

Do not touch the calamus, as the DNA is extracted from the skin cells attached to it.

Feather Envelope Metadata

Place the feathers from each bird into one of the provided pre-labeled BGP envelopes and **legibly** fill in metadata on the envelope. Using your own envelopes is fine, but please use coin-sized envelopes and ensure that the following information is written on each envelope. The four points with asterisks are needed at the very least:

- *Band number or alternate ID
- *Date of collection
- *Species common name or alpha code
- *Nearest town or city and state (station or location codes are optional)
- Age, sex, breeding (as determined by brood patch or cloacal protuberance), and recapture.

Leave the BGP ID# blank; this will be assigned after we receive and accession your samples into our collection.

Electronic Metadata

Please email the lab manager, Amanda Carpenter, your electronic metadata (birdgenoscape@gmail.com) when you're ready to send samples. The preferred format is available below. **Lat/long coordinates are extremely important for our population-specific work!**

Band # or Alt ID	Year	Month	Day	Species Code	Sex	Age	Breeding	Recapture	Country	State	Near Town	Lat	Long
XXXX XXXXX	2024	NOV	1	AMRO	M, F, or U	If known or U	Y, N, or U	R or N	USA	MD	Silver Spring	39.01	-77.02

If you use a location code/acronym on your feather envelopes, please ensure that the full name for this code is provided along with your metadata.

*If you are a contributor that collects blood samples for us, please ensure you specify sample type (blood, feather, or both) in your metadata.

Feather Storage – Important!

Feathers are best stored in a refrigerator until they are ready to send but can also be stored at room temperature away from direct sunlight. Samples should not be left in a hot vehicle. Direct sun (UV) and heat can degrade the DNA on your samples. Preferably, store samples until the end of your field season or year to minimize shipments (see shipping instructions below).

Ready to Send Your Samples?

When you're ready to mail your samples, please email Amanda Carpenter (birdgenoscape@gmail.com) with the following information to request a prepaid FedEx, UPS, or USPS return shipping label:

- Approximate weight and dimensions of package.
- Preference for carrier.
- Return address.
- Contact number + email.

If using your own label, please mail the samples to the following address:

ATTN: Amanda Carpenter
Colorado State University, Biology
200 W. Lake Street
1878 Campus Delivery
Fort Collins, CO 80523

****Copies of the following permits should be included in the shipment package****

1. A copy of the federal bird banding permit or federal migratory bird scientific collection permit.
2. A copy of the state scientific collecting permit(s).
3. A copy of the Bird Genoscape Project's USDA domestic transport permit #138961 (provided via email).

Thank you very much for your participation in The Bird Genoscape Project! If you would like to collaborate on a particular species or learn more about each of the species we're working on, please visit our website:

www.birdgenoscape.org