

2024 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 **all stages of the annual cycle**:

Alder Flycatcher	(ALFL)	Least Flycatcher	(LEFL)
American Crow	(AMCR)	Lincoln's Sparrow	(LISP)
American Robin	(AMRO)	Loggerhead Shrike	(LOSH)
Baird's Sparrow	(BAIS)	MacGillivray's Warbler	(MGWA)
Bank Swallow	(BANS)	Magnolia Warbler	(MAWA)
Bay-breasted Warbler	(BBWA)	Mourning Warbler	(MOWA)
Blackburnian Warbler	(BLBW)	Nashville Warbler	(NAWA)
Black-capped Chickadee	(BCCH)	Ovenbird	(OVEN)
Black-throated Blue Warbler	(BTBW)	Palm Warbler	(PAWA)
Black-throated Green Warbler	(BTNW)	Philadelphia Vireo	(PHVI)
Blue-headed Vireo	(BHVI)	Plumbeous Vireo	(PLVI)
Boreal Chickadee	(BOCH)	Red-eyed Vireo	(REVI)
Brewer's Sparrow	(BRSP)	Ruby-crowned Kinglet	(RCKI)
Brown Creeper	(BRCR)	Sprague's Pipit	(SPPI)
Cape May Warbler	(CMWA)	Tennessee Warbler	(TEWA)
Cassin's Vireo	(CAVI)	Veery	(VEER)
Chestnut-collared Longspur	(CCLO)	Warbling Vireo	(WAVI)
Chestnut-sided Warbler	(CSWA)	Western Tanager	(WETA)
Connecticut Warbler	(CONW)	White-throated Sparrow	(WTSP)
Dark-eyed Junco (all subspecies)	(DEJU)	Winter Wren	(WIWR)
Golden-crowned Kinglet	(GCKI)	Yellow-billed Cuckoo	(YBCU)
Grasshopper Sparrow	(GRSP)	Yellow-bellied Flycatcher	(YBFL)
Hairy Woodpecker	(HAWO)	Yellow-bellied Sapsucker	(YBSA)
Horned Lark	(HOLA)	Yellow-breasted Chat	(YBCH)
Kentucky Warbler	(KEWA)	Yellow-rumped Warbler	(YRWA)

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)	Painted Bunting	(PABU)
American Redstart	(AMRE)	Swainson's Thrush	(SWTH)
Canada Warbler	(CAWA)	Willow Flycatcher	(WIFL)
Common Yellowthroat	(COYE)	Wilson's Warbler	(WIWA)
Hermit Thrush	(HETH)	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:

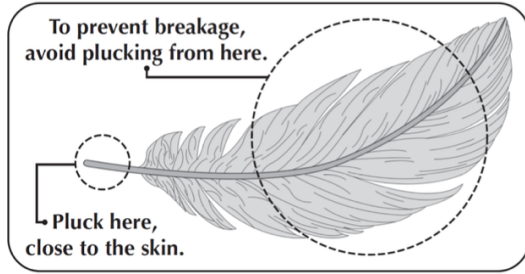
American Goldfinch	(AMGO)	Northern Waterthrush	(NOWA)
Black-and-white Warbler	(BAWW)	Orange-crowned Warbler	(OCWA)
Blackpoll Warbler	(BLPW)	Pine Siskin	(PISI)
Black-headed Grosbeak	(BHGR)	Prothonotary Warbler	(PROW)
Carolina Wren	(CARW)	Rusty Blackbird	(RUBL)
Chipping Sparrow	(CHSP)	Song Sparrow	(SOSP)
Fox Sparrow	(FOSP)	Spotted Towhee	(SPTO)
Gray Catbird	(GRCA)	Virginia's Warbler	(VIWA)
Henslow's Sparrow	(HESP)	Western Grebe	(WEGR)
Hooded Warbler	(HOWA)	Western Meadowlark	(WEME)
Indigo Bunting	(INBU)	White-eyed Vireo	(WEVI)
LeConte's Sparrow	(LCSP)	White-crowned Sparrow	(WCSP)
Thick-billed Longspur	(TBLO)	Wrentit	(WREN)
Mountain Chickadee	(MOCH)	Wood Thrush	(WOTH)
Mountain Plover	(MOPL)		
Northern Shrike	(NSHR)		

Feather Collection, Metadata, and Shipping Protocols

When tail feathers are pulled, a small amount of skin cells remains attached to the tip of the calamus. These skin cells are a valuable source of DNA that can 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 can provide important information on 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. This does not include woodpeckers and birds of prey for which tail feathers are critical for foraging. For these species, 10 body feathers will suffice.

There is no need to collect feathers from the same individual more than once during the same season.

Collecting Feather Samples



Before taking any feather samples, make sure that your hands are clean. If you are collecting samples from multiple birds, wash or sanitize your hands between each collection.

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.*

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 fill out metadata. 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:

- *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.

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	Date	Species	Sex	Age	Breeding	Recapture	Sample Type	Country	State	Near Town	Lat	Long
XXXX-XXXXX	mm/dd/yyyy	American Robin	M, F, or U	If known	Y or N	R or N	Feather or blood	USA	MD	Silver Spring	39.01	77.02

Feather Storage

Feathers are preferably stored in 4°C refrigerators but can also be stored at room temperature away from direct sunlight. Please store samples until end of field season 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 or UPS return shipping label:

- Approximate weight and dimensions of package
- Preference for UPS or FedEx label
- 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
Campus Delivery 1878
Fort Collins, CO 80523

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

For domestic shipments **of samples collected within the USA or previously imported to the USA**, please include:

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)

For shipments from **outside of the USA**, please contact Amanda Carpenter first (birdgenoscape@gmail.com).

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 the current sample distribution for our target taxa, please visit our website:

www.birdgenoscape.org