



United States 2026 Feather Sampling Protocol

The Bird Genoscape Project welcomes feather samples from any migratory or resident species, not limited to the lists below.

Exceptions: we would prefer no migratory Gray Catbird, Song Sparrow, White-crowned Sparrow, White-throated Sparrow, Wood Thrush, or Yellow-rumped Warbler samples collected during migration at this time. Breeding or wintering samples are still desired.

Category I: Species for which we are actively building population-specific range maps. We are interested in samples from the **Breeding or Wintering grounds:**

| | | | |
|----------------------------|------|------------------------------------|------|
| American Robin | AMRO | Eastern Warbling Vireo | EAWV |
| Baird’s Sparrow | BAIS | Hairy Woodpecker | HAWO |
| Bank Swallow | BANS | Horned Lark | HOLA |
| Blackpoll Warbler | BLPW | Nashville Warbler | NAWA |
| Blue-headed Vireo | BHVI | Northern Saw-whet Owl *& migration | NSWO |
| Bobolink | BOBO | Palm Warbler | PAWA |
| Brewer’s Sparrow | BRSP | Plumbeous Vireo | PLVI |
| Brown Creeper | BRCR | Ruby-crowned Kinglet | RCKI |
| Cassin’s Vireo | CAVI | Rufous Hummingbird *& migration | RUHU |
| Chestnut-collared Longspur | CCLO | Tennessee Warbler | TEWA |
| Chihuahuan Meadowlark | CHME | Western Meadowlark | WEME |
| Common Loon | COLO | Yellow-billed Cuckoo | YBCU |
| Eastern Meadowlark | EAME | Yellow-bellied Sapsucker | YBSA |

Category II: Species for which our population-specific breeding range maps are nearly complete or completed. We are mostly interested in samples from **the Wintering grounds:**

| | | | |
|----------------------------------|------|------------------------|------|
| 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 | Western Warbling Vireo | WEWV |
| Dark-eyed Junco (all subspecies) | DEJU | Wilson’s Warbler | WIWA |
| Grasshopper Sparrow | GRSP | Yellow-breasted Chat | YBCH |
| Hermit Thrush | HETH | Yellow Warbler | YEWA |

Category III: Species for which we are considering building population-specific range maps as funding or collaborations become available and sampling gaps across the range are filled. We are building a repository of samples from **1) Breeding & Wintering grounds; 2) Migration:**

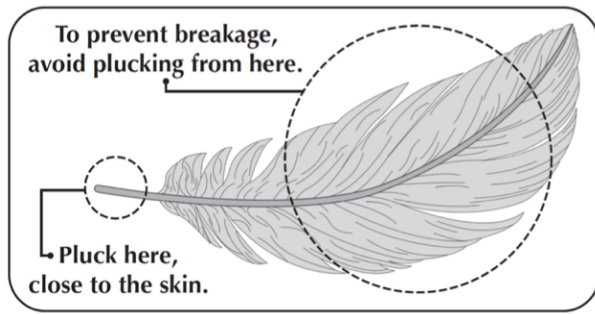
| | | | |
|--------------------------------|------|--------------------------------|------|
| Alder Flycatcher | ALFL | Golden-crowned Kinglet | GCKI |
| American Three-toed Woodpecker | ATTW | Least Flycatcher *no migration | LEFL |
| Bay-breasted Warbler | BBWA | Mountain Chickadee | MOCH |
| Bendire's Thrasher | BETH | Mourning Warbler | MOWA |
| Black-backed Woodpecker | BBWO | Northern Shrike | NSHR |
| Blackburnian Warbler | BLBW | Pacific Wren | PAWR |
| Blue Grosbeak | BLGR | Philadelphia Vireo | PHVI |
| Boreal Chickadee | BOCH | Red-eyed Vireo *no migration | REVI |
| Cape May Warbler | CMWA | Ruby-throated Hummingbird | RTHU |
| Connecticut Warbler | CONW | Savannah Sparrow | SAVS |
| Clay-colored Sparrow | CCSP | Snow Bunting | SNBU |
| Downy Woodpecker | DOWO | Sprague's Pipit | SPPI |
| Eastern Kingbird | EAKI | Thick-billed Longspur | TBLO |
| Evening Grosbeak | EVGR | Western Kingbird | WEKI |
| Gray-cheeked Thrush | GCTH | Winter Wren | WIWR |

Feather Collection, Metadata, and Shipping Instructions

Overview: When a tail feather is pulled, a small amount of skin cells remains on the tip of the calamus. These skin cells are a valuable source of DNA that can then be used to identify how many genetically distinct populations exist across the breeding range of a species. With this map, or genoscape, the population origin of an individual bird that's sampled during migration or on the wintering grounds can also be determined. A portion of the plume of the feather can be used for stable isotope analyses, too, which alludes to the latitudinal gradient where the feather was grown. While our focus is not stable isotope work, we have shared such material with other researchers to support their projects.

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, 10-15 body (ex: woodpeckers) or 5 large contour body feathers (ex: raptors) are needed because this feather type yields less DNA than a tail feather. **Please do not collect feathers from the same individual more than once during the same time of year.**

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 tail feather, either R1 or R6, is also fine.

Do not touch the tip of the calamus. We do not want to possibly remove or contaminate the few skin cells here.

Place the feathers from each bird into an envelope and legibly fill in the fields on the envelope. Leave the BGP ID # blank; this will be assigned after we receive and curate your samples into our collection.

If you decide to use your own envelopes, please use coin-sized ones if possible, and write on the envelope all the required metadata (see example BGP envelope below). If you use a location code/acronym on your envelopes, please ensure that the full name for this is provided in the electronic metadata file (see below).

| |
|---|
| BGP ID # _____ |
| DATE: Month _____ Day _____ Year _____ |
| SPECIES: _____ |
| BAND # or ALT ID: _____ |
| LOCATION: _____ |
| SEX: M ___ F ___ UNK ___ AGE CODE: _____ UNK ___ |
| BREEDING? Y ___ N ___ UNK ___ RECAPTURE? Y ___ N ___ |
| BLOOD COLLECTED? Y ___ N ___ |

Electronic Metadata

In addition to filling in your envelopes, 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; please provide this in decimal format.

*We can accept BBL data files, but please let us know if there is more data in the sheet than samples sent.

| Band # or Alt ID | Year | Month | Day | Species Code | Sex | Age | Breeding | Recapture | Country | State | Near Town | Lat | Long |
|------------------|------|-------|-----|--------------|---------------------|---------------------|---------------|-----------|---------|-------|---------------|----------|-----------|
| XXXX XXXXX | 2024 | JUN | 1 | AMRO | M, F, or U | If known or U | Y, N, or U | R or N | USA | WI | Eau Claire | 44.81135 | -91.51009 |

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), heat, and high humidity can degrade 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, email Amanda Carpenter (birdgenoscape@gmail.com) with the following information below to request a prepaid return shipping label:

- Approximate weight and dimensions of package.
- Return address, including contact number and email (if other than the email being used).
- If you have a preference for carrier (e.g., USPS, UPS, FedEx); we will try and accommodate where possible.

If you would like to cover shipping costs, 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 (if applicable).
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