

AMERICAN DIPPER PROJECT

NEST MONITORING PROTOCOL

OVERVIEW

The objective of the American Dipper Project is to study the breeding success of American Dippers (*Cinclus mexicanus*) on the Animas River and other streams in southwestern Colorado. Prior to 2016 relatively little was known about the Animas River's American Dipper population. The Gold King Mine spill in 2015 raised concerns about the health of the American Dippers in the Animas River, and a group of volunteers began to study the birds. From 2016 through 2020, volunteers have completed numerous surveys, learning about nesting behavior, nest site fidelity, and other breeding habits of the American Dipper. In 2018 a catastrophic wildfire burned portions of the Animas watershed, and subsequent flooding introduced large volumes of sediment to the river, potentially impacting American Dipper habitat and food sources. Surveys have included sites in disturbed reaches of the river as well as streams that have not been affected by mining or fire.

SELECTION OF RIVER REACHES AND FREQUENCY OF FIELD VISITS

In 2021 American Dipper Project field activities are focused on nest sites documented by project volunteers in 2016 through 2020. These sites are on the Animas River and its tributaries in and near Durango. In 2021 we plan to add sites on the San Juan River in Pagosa Springs. Surveys will be conducted beginning in March 2021 and continuing into the summer months of July or August when dipper nesting season ends in Colorado. During field surveys, we will look for signs of courtship and nesting activity including copulation, nest building, incubation, feeding of nestlings, and presence of fledglings.

In their natural habitat American Dippers nest across a wide range of elevations. Nests are built close to fast flowing water on rock cliffs or other places where ledges inaccessible to predators are available. In urban settings dippers commonly build nests on bridge structures or in drain pipes.

Dippers frequently use the same sites for nesting each year. Sometimes the existing nest is used, however they commonly build a new nest nearby. Nests are built using moss, small sticks, and grass; and, once the observer gains experience, are easily distinguishable from nests built by other bird species (e.g. swallows, flycatchers) in similar locations.

Volunteers may sign up to monitor dipper nesting activity along the rivers and reaches of their choice. We encourage volunteers to form teams for each nest site to share the workload. We seek to recruit volunteers to serve as Team Leaders for one or more nest sites. A Team Leader will organize the schedule of visits across the season and amongst their team of volunteers.

The general schedule for field visits will consist of one visit per active nest per week beginning in mid-March at lower elevations, or as late as mid- to late May for nests at higher elevations. This frequency of site visits should be maintained throughout the duration of the nesting cycle, increasing to two or three visits each week as nestlings mature and approach fledging. Observation of fledglings is essential for being able to determine nest success.

Our nest monitoring protocol is modified from protocol developed by the Cornell Laboratory of Ornithology's NestWatch program. We encourage all volunteers to visit the NestWatch website (<https://nestwatch.org/>) to learn about monitoring bird nests. Read their nest watching Code of Conduct and consider taking the quiz and becoming certified as a nest watcher. The Project Manager will enter American Dipper Project's data to the NestWatch database.

The American Dipper Project's nest monitoring data sheets are designed for recording multiple visits to a nest on one sheet. We ask that you bring datasheets with you each time you go in the field and complete it while there. The data sheet includes 10 rows for field observations, and all entries on a data sheet should be for the same site. If you are observing dippers at multiple sites, use a separate data sheet for each site. Complete one row for each site visit, and when the data sheet is full, send it via email to the Project Manager.

TIPS for VOLUNTEERS

- **THE MORE THE MERRIER** – we've found it is much more efficient, rewarding, and fun to team up with other volunteers; our success rate in finding nests, counting numbers of dippers, and figuring out what the birds were up to is much higher with multiple observers.
- **SHARE NESTS** – everybody is busy and it can often be difficult to visit a nest regularly. If multiple people are responsible for watching a nest then it is less likely nesting activity will be missed. There is no such thing as too many observations.
- **THE IMPORTANCE OF COMMUNICATION** – if you see something really cool or unusual, let other dipper watchers know. Everybody enjoys and learns from seeing a dipper building a nest with moss or watching nestlings being fed. It is also helpful to tell others you won't be able to watch an active nest; then hopefully another volunteer can fill in.

COMPLETION OF FIELD DATA SHEETS

The following instructions pertain to each of the fields on the 2021 American Dipper Project data sheet. Please read carefully and record the information accordingly.

Please enter information in every space on the row for each visit to old or new nests even if you don't see any dippers. All observations are valuable, and recording absence of birds is very important. If a site visit is not recorded, then it is the same as saying you weren't there!

In our experience dippers can be active at nests any time of day, and there is not a *best* time to survey nests. However, it is recommended not to disturb nesting birds very early in the morning or near sunset. Often adults will be away from the nest when you arrive. They don't stay away long and we recommend observing the nest for a minimum of twenty minutes (half hour is better) and it is very likely adult dippers will become visible during this period. When surveying, do not approach nests closely to examine the nest to avoid potential disturbance or distraction.

To minimize risk of disturbing nests or birds, we ask volunteers **not to check the nest contents**. Please view nests from an appropriate distance with binoculars or a spotting scope.

River Name — Write the name of the river you are surveying. A list of river names and names for known nests is provided at the end of this protocol. If you discover a nest on a stream not included on the list, please contact the Project Managers and they will assist you in documenting the site.

Nest Name — Write the name of the nest you are surveying. If this is the first time a nest has been surveyed create a unique name for the nest site.

Date — Write today’s date in the following format: ‘Month Day Year’ (e.g., April 23, 2021).

Time — Record the time you began your observations (e.g., 7:30).

Observer(s) — Include the initials of all observers conducting each survey.

Nest Site Description — If this is the first time a nest is observed, write a short description or draw a picture of the nest site in a field notebook, and record as much of the following information as possible. Describe the location of the nest in as much detail as possible. Is it on a cliff/rock face or on a man-made structure? If man-made, in what kind of structure is the nest placed (e.g., bridge, drainpipe, etc.)? Is the nest directly visible from the shoreline or is it hidden from view? About how high is the nest above the water or ground? What are the characteristics of the river or stream near the nest (e.g. riffle, pool, etc.), and of the surrounding landscape? Are there any other important features about the nest to help other members of your nest monitoring team find the nest?

- **Location** — Describe the closest major landform feature, trail crossing, or road; record exact coordinates of nest in decimal degree format (Latitude and Longitude); mark location on topographic map.
- **Nest Substrate**—This describes the position of the nest (in, on, or under) relative to the surface on which the nest is built. For example, it can be on a cliff, under a bridge, in a drainpipe, in a nest box, on a tree branch, etc. Note: this is a required field in the online database. These are examples representing the types of surfaces that nests may be **in, on, or under**:

Cliff or rock	Dead tree branch
Building or other structure	Live tree branch
Drainpipe	Bush or shrub
Cavity in dead tree	Ground
Cavity in live tree	Floating vegetation
Nest box/birdhouse	Other
Post/Pole or platform	

- **Immediate Habitat Within One Meter**—This refers to the immediate habitat within one meter of where the nest resides. Draw an imaginary circle (1 meter in diameter) around the nest and determine the habitat type.

- **Dominant Habitat Within 100 meters**—This is the dominant landscape type within 100 meters of the nest, and the likely area where the bird is foraging. Scan the area surrounding the nest (an area about the size of a football field) and determine which habitat type is most dominant. These are examples representing the types of dominant habitat that may be nearby. Choose all that are present.

Human modified	Agricultural
Woodland/Forest	Natural grassland and prairie
Shrubland and chapparal	Other
Fresh water	

- If the Dominant Habitat type is **human modified**, choose the type of modification from the list below.

Yard, residential area	Public park/green space
Roadside	Golf course
Landfill/gravel pit/strip mine	Cemetery
Industrial/commercial area	Airport
Power/Utility Corridor	Campground
Christmas tree farm	Orchard/vineyard
Recently clear cut area	Recently burned area
Campus/schoolyard/church/hospital	Other

- **Nest Height Above Water or Ground** — Specify feet (ft.) or meters (m.) and note whether flow in stream is high or low.

Nest Status – When you visit a nest site, record the status of the nest as one of the following:

- **NO = No nest.** No nest present.
- **CN = Completed nest.** Nest appears structurally complete
- **IN = Incomplete nest.** Evidence of nesting material; nest building appears to be in process, but not quite finished.
- **DN = Damaged nest.** Nest appears disheveled and/or torn apart.
- **FN = Enlarged or damaged nest opening.** This is evidence that nestlings were present—the opening was enlarged or damaged when they left.
- **RN = Nest removed, reason unknown.** An active nest disappears for an unknown reason. Do not use this code if you know the reason for the removal of the nest.
- **O = Other (Describe in notes)**

Adults, Number — Enter the number of adult dippers observed.

Nestlings, Number: Enter the number of nestlings observed. The following observations are strong indicators or confirmed evidence that a nest contains nestlings even if the nestlings are not actually seen. If these are observed, enter the number of nestlings as ≥ 1 :

- 1) Adult enters the nest carrying food and then exits the nest without food
- 2) Chirping/peeping/begging calls are heard inside the nest

Fledglings, Number — Enter the number of fledgling dippers observed.

Adult Behavior — If you observe adult dippers, please record behaviors observed from the following list. It is common to observe multiple behaviors at a nest site. Record everything seen. When more than one bird is present, group observations rather than recording behavior for each individual.

- **NO = No adults seen or heard.** During your nest check, you did not see or hear any adults near the nest.
- **VA = Adults seen foraging, preening, or resting nearby, but not visiting nest.** Adult dippers seen in area, but they do not visit nest.
- **BA = Building nest or carrying nest material.** An adult carries nest material to the nest site or is in the nest while building it.
- **RA = Remained on the nest.** During a nest check, the adult remained on the nest.
- **AA = At/on, then flushed from nest.** During a nest check, an adult flies out from the nest.
- **FA = Feeding young at nest.** A parent carries food to the nest or drops food into the open mouths of nestlings.
- **FF = Feeding Fledglings.** Adult bird bringing food to fledgling near nest.
- **O = Other (Describe in notes)**

Nestling or Fledgling Behavior: If you see or hear young birds in or near the nest, please record relevant observations from the following list.

- **NO = No young present.**
- **VY = Vocal young, heard only.** Young in the nest were heard but not seen.
- **FY = Feathered young in nest.** Body feathers are visible, little or no skin visible.
- **FL = Fledgling seen near nest.**
- **O = Other (Describe in notes)**

Notes — Add anything you'd like to include about your observations that day that you did not have space for elsewhere on the data sheet. If there is not enough room on the data sheet for your notes, then write in a field notebook or on a separate piece of paper.

BREEDING ECOLOGY of the AMERICAN DIPPER (*Cinclus mexicanus*)

Breeding Habitat

- Fast-moving, clear, unpolluted streams with cascades, riffles, and waterfalls
- Streams rarely exceed 15 m in width or 2 m in depth
- Rocky or gravelly stream bottoms for foraging
- Instream rocks and boulders for perching
- Most breeding occurs on streams in forested areas with trees that shade the stream
- Territory size ranges widely, from ~400 m (~1/4 mi) to 4 km (~2 ½ mi) of stream length

Nest Description

- Dipper build nests on ledges or in crevices, usually with an overhang
- Dippers may nest in natural habitats (e.g., cliffs, rock piles, hollow tree stumps, dirt banks) or man-made substrates (e.g., bridges, dam spillways, culverts, and nest boxes)
- Bulky, domed nests constructed of moss with outside diameter 20-25 cm (~7 ¾ to 10 in); inner nest cup made of grasses and leaves
- Nests have a side entrance
- Often dippers will re-use the same nest in consecutive years.
- At some sites the nest is not re-used and a new nest is built nearby.
- Sometimes dippers will abandon a nest site.
- There can be two active nests active nests close to each other at a single site.

Breeding Cycle

- Dippers initiate breeding from March to May, depending on snow melt
- In Colorado, dates for active nests ranged from mid-March to late July (2007 to 2020)
- The female starts nest building but both sexes participate
- The female lays a clutch of 4-5 eggs over 6-15 days
- Incubation requires 14-17 days
- After hatching, young stay in the nest 24-26 days
- Upon fledging, young remain in their natal stream for 4-25 days; parents split the brood and divide the territory between them
- Dippers will re-nest if their first nesting attempt fails. Will raise more than one brood per season at lower elevations.

Behavior

- Dippers forage by walking along the stream bottom (they cling to rocks with their feet) or diving and swimming (flying) underwater
- Birds exhibit "dipping" behavior (up-and-down movement of entire body)
- Both sexes sing and vocalize a variety of calls

- Both sexes defend the territory from other dippers; territorial behavior includes chasing/pursuing intruders, dipping, and threat displays
- Courtship between male and female may include:
 - Courtship Feeding -Female begs, crouches, flutters wings, and gapes like a fledgling; male feeds her; both birds dip
 - Singing: Male sings and displays for female. Male stretches neck with bill pointed skyward, stretches wings down and slightly open, presses feathers against his body, or struts.
 - Flight Chase: Most frequent early in nesting season. Male chases female for up to 10 min, the pair twisting and turning at high speed.
- Copulation: Usually on a rock; males mounts female and cloacas touch (though you might not see that); can lasts up to 15 seconds and be repeated several times in a few minutes, the pair twisting and turning at high speed.
- Fledglings: Beg for food from the adults. Adults teach song to the young birds by singing to them before they stuff food in their mouths.

References

Bailey, R. L., T. Phillips, H. Faulkner-Grant, J. Lowe, J. M. Martin, and R. Bonney. 2019. NestWatch Nest Monitoring Manual. Ithaca, NY: Cornell Lab of Ornithology.

Kingery, H. E. 2016. American Dipper (*Cinclus mexicanus*). Pages 440-441 in Colorado Bird Atlas Partnership. 2016. The Second Colorado Breeding Bird Atlas online database. Colorado Bird Atlas Partnership, Denver, CO. Available at: <http://www.cobreedingbirdatlasii.org>.

Willson, Mary F. and Hugh E. Kingery. 2011. American Dipper (*Cinclus mexicanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: [http://bna.birds.comell.edulbna/species/229doi: 1 0.21731bna.229](http://bna.birds.comell.edulbna/species/229doi:10.21731bna.229)

* *The internet is a wealth of information about birds. For more information check out Cornell Lab of Ornithology's 'All About Birds' website (<https://www.allaboutbirds.org/>)*

American Dipper Project – Nest Sites			
River	Nest Name	Latitude	Longitude
Animas River	Animas Howardsville Bridge	37.835	-107.599
Animas River	Animas Tramway Facing Upstream	37.827	-107.618
Animas River	Animas Tramway Facing River	37.827	-107.618
Animas River	Animas Tramway Hidden	37.827	-107.620
Animas River	Animas Arrastra Bridge	37.827	-107.626
Animas River	Animas Cascade Railroad Bridge South	37.598	-107.773
Animas River	Animas Cascade Railroad Bridge North	37.598	-107.773
Animas River	Animas Cascade Footbridge East	37.597	-107.777
Animas River	Animas Cascade Footbridge West	37.597	-107.777
Animas River	Animas 32 nd Street Bridge	37.300	-107.869
Animas River	Animas Mainstreet Bridge	37.281	-107.878
Animas River	Animas Powerhouse Drainpipe	37.279	-107.880
Animas River	Schneider Park Bridge	37.277	-107.883
Animas River	Animas Old Intake Structure	37.277	-107.883
Animas River	Animas 9th Street Bridge	37.274	-107.884
Animas River	Animas Hwy 160 Bridge	37.269	-107.886
Animas River	Animas Santa Rita Bridge	37.258	-107.876
Cunningham Creek	Cunningham near Beaver Ponds	37.834	-107.594
Cunningham Creek	Cunningham Bridge	37.836	-107.595
Engine Creek	Lower Engine Creek Falls	37.705	-107.841
Lime Creek	Lime Creek in Lower Box	37.630	-107.786
Cascade Creek	Cascade at Lower Purgatory Flats	37.616	-107.791
Cascade Creek	Cascade in Upper Lower Gorge	37.613	-107.790
Cascade Creek	Cascade near Animas	37.599	-107.777
Hermosa Creek	Hermosa Hwy 203 Bridge	37.415	-107.838
Hermosa Creek	Hermosa Hwy 550 Bridge	37.414	-107.836
Junction Creek	Junction near Upper Parking	37.336	-107.919
Junction Creek	Junction near Lower Parking	37.335	-107.911
Vallecito Creek	Vallecito above Campground	37.503	-107.537
Vallecito Creek	Vallecito near Campground	37.472	-107.547
Vallecito Creek	Vallecito Bridge near Campground	37.468	-107.550
Pine River	Pine Cool Water Upstream Bridge	37.354	-107.610
Pine River	Pine Cool Water Downstream Bridge	37.353	-107.618
Florida River	Florida Bridge near Campground above Lemon	37.454	-107.682
Florida River	Florida Bridge near Gage above Lemon	37.428	-107.675
Florida River	Florida CR 243 Bridge below Lemon	37.368	-107.667
Florida River	Florida CR 240 Bridge near Helen's Store	37.361	-107.671
Florida River	Florida CR 245 Bridge below Lemon	37.344	-107.705
Florida River	Florida CR 240A Bridge below Lemon	37.325	-107.753
Florida River	Florida CR 248 Bridge below Lemon	37.314	-107.770
Piedra River	Piedra near Davis Creek	37.366	-107.298
Piedra River	Piedra near First Fork	37.354	-107.319
Sand Creek	Sand near Piedra	37.366	-107.298
La Plata River	La Plata Falls	37.407	-108.057

The Water Ouzel

I saw a bird with hues of slate
Bobbing and dipping with it's mate
Among the rocks of an enchanting stream,
A paradise – a botanist's dream!
Dripping moss in sunlight rays,
Waterfalls and misty sprays.
Far from city crowds, the lemming rush and din.
Beneath the billowed clouds. I drink the splendor in.
A stranger in the wild terrain.
Trespassing on the bird's domain.
I stood and gazed somewhat amazed, they did such funny things.
Just carefree feathered submarines – with wings.
The gray birds teetered on a rock and sang from it's glistening dome.
An aria, trilling and sweet echo'd their primeval home.
Close by me this summer day.
They continued to swim and play.
Then, leaving the stream and birds, the winding trail I trod.
Richer than inspired words, I had seen the hand of God.
I thought of what I'd left behind.
The beautiful place, the peace of mind.
I knew as shades of eventide gathered in the west,
The water ouzels were safe inside their hidden ledge-rock nest.

- by Bob Heirman – 1992, from a Poet's Paradise