

The 7B Ranch falls within Audubon's identified "Lower San Pedro River Important Bird Area". The San Pedro River riparian corridor from the "Narrows" to the Gila River confluence was identified as a state Important Bird Area (IBA) by the Arizona IBA Science Committee in January 2007. The area received "Global" IBA status in January 2008 by the National Audubon IBA Technical Committee. The Audubon IBA bird survey data collection coordinated by the Tucson Audubon-IBA Program, Avian Science Initiative, at 7B Ranch provided key "mesquite bosque avian habitat" data for these reviews. Monitoring has continued by Audubon's IBA Program at the 7B Ranch (and at additional locations) because of the continued interest by many agencies and organizations in achieving unified conservation and protection for the Lower San Pedro River, and having current data available to contribute to planning, discussions, and land management decisions.

Audubon's Important Bird Areas Program conducted bird surveys at the 7B Ranch near Mammoth, Arizona over the years 2006-2010, and plans to continue these surveys. Transects of near 1 kilometer in length were set and flagged in the "Hot Spring" bosque (west of River Road) and the River bosque (north of Copper Creek Road). Transect surveys used a 50 meter truncation (perpendicular) distance on either side of the transect path, within which all birds were recorded with numbers, sex, and behavior. Point counts (3 per transect) also occurred in 2006 and 2007, with a 100 meter truncation distance. Birds observed on the 7B Ranch property before or after the surveys, or beyond truncation distances were recorded as "supplemental". A 16-hectare area search plot survey, randomly chosen under the Arizona Game and Fish Department's riparian bird monitoring program was conducted in May 2010. Two experienced bird surveyors conducted all Audubon surveys except the AZGFD riparian plot, which was conducted by one surveyor.

Table 1. Avian species detected by Audubon's Arizona IBA Program, during surveys of 7B Ranch, lower San Pedro River, Mammoth, Arizona, 2006-2010, by Audubon's Important Bird Areas Program, Avian Science Initiative, Tucson Audubon Society.

Common Name	Species	Hot Springs Bosque Transect (n=7 surveys) (925 m)	River Bosque Transect (n=5 surveys) (924 m)	7B Ranch (comprehensive)
Gambel's Quail	<i>Callipepla gambelii</i>	T		X
Great Blue Heron	<i>Ardea herodias</i>	T		X
Turkey Vulture	<i>Cathartes aura</i>	T	T	X
Northern Harrier	<i>Circus cyaneus</i>	S		X
Cooper's Hawk	<i>Accipiter cooperii</i>	T	T	X
Gray Hawk	<i>Asturina nitida</i>	T	T	X
Swainson's Hawk	<i>Buteo swainsoni</i>	T	T	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>		T	X
American Kestrel	<i>Falco sparverius</i>	S		X
Prairie Falcon	<i>Falco mexicanus</i>		S	X
Unidentified Raptor (Diurnal)	<i>Accipitriformes</i>	T		X
White-winged Dove	<i>Zenaida asiatica</i>	T	T	X
Mourning Dove	<i>Zenaidura macroura</i>	T	T	X
Inca Dove	<i>Columbina inca</i>	T	T	X
Common Ground-Dove	<i>Columbina passerina</i>	T	T	X
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	T		X
Greater Roadrunner	<i>Geococcyx californianus</i>	T		X
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	T		X
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	T	T	X
Anna's Hummingbird	<i>Calypte anna</i>	T	T	X
Costa's Hummingbird	<i>Calypte costae</i>		S	X
Unidentified Hummingbird	<i>Trochilinae</i>	T		X
Gila Woodpecker	<i>Melanerpes uropygialis</i>	T	T	X

Ladder-backed Woodpecker	<i>Picoides scalaris</i>	T	T	X
Northern Flicker	<i>Colaptes auratus</i>		T	X
Gilded Flicker	<i>Colaptes chrysoides</i>	S		X
Unidentified Flicker sp.	<i>Colaptes sp.</i>	T		X
Unidentified Woodpecker	<i>Picinae</i>	T		X
Northern Beardless-Tyrannulet	<i>Camptostoma imberbe</i>		T	X
Western Wood-Pewee	<i>Contopus sordidulus</i>	T		X
Unidentified Empidonax	<i>Empidonax sp.</i>	T		X
Black Phoebe	<i>Sayornis nigricans</i>	T		X
Say's Phoebe	<i>Sayornis saya</i>	T	T	X
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	T	T	X
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	T	T	X
Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>	T	T	X
Unidentified Myiarchus sp.	<i>Myiarchus sp.</i>	T		X
Cassin's Kingbird	<i>Tyrannus vociferans</i>		P	X
Western Kingbird	<i>Tyrannus verticalis</i>	T	T	X
Bell's Vireo	<i>Vireo bellii</i>	T	T	X
Plumbeous Vireo	<i>Vireo plumbeus</i>		T	X
Cassin's Vireo	<i>Vireo cassinii</i>	T		X
Unidentified "Solitary" Vireo	<i>Vireonidae</i>	T		X
Warbling Vireo	<i>Vireo gilvus</i>		T	X
Unidentified Vireo	<i>Vireo sp.</i>	S		X
Common Raven	<i>Corvus corax</i>	T	T	X
Unidentified Raven	<i>Corvus sp.</i>	T		X
Purple Martin	<i>Progne subis</i>	S		X
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	T	P	X
Barn Swallow	<i>Hirundo rustica</i>	S		X
Verdin	<i>Auriparus flaviceps</i>	T	T	X
Bushtit	<i>Psaltiparus minimus</i>	T		X
Cactus Wren	<i>Campylorhynchus brunneicapillus</i>	T	T	X

Bewick's Wren	<i>Thryomanes bewickii</i>	T	T	X
Ruby-crowned Kinglet	<i>Regulus calendula</i>	T	T	X
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	T		X
Black-tailed Gnatcatcher	<i>Polioptila melanura</i>	T		X
Northern Mockingbird	<i>Mimus polyglottos</i>	T		X
Curve-billed Thrasher	<i>Toxostoma curvirostre</i>	T		X
Phainopepla	<i>Phainopepla nitens</i>	T	T	X
Orange-crowned Warbler	<i>Vermivora celata</i>	T		X
Virginia's Warbler	<i>Oreothlypis virginiae</i>	S		X
Lucy's Warbler	<i>Vermivora luciae</i>	T	T	X
Yellow Warbler	<i>Dendroica petechia</i>	T	T	X
Yellow-rumped Warbler	<i>Dendroica coronata</i>	T	T	X
Townsend's Warbler	<i>Dendroica townsendi</i>	T		X
Louisiana Waterthrush	<i>Parkesia motacilla</i>		P	X
Common Yellowthroat	<i>Geothlypis trichas</i>	T		X
Wilson's Warbler	<i>Wilsonia pusilla</i>	T	P	X
Yellow-breasted Chat	<i>Icteria virens</i>	T	T	X
Summer Tanager	<i>Piranga rubra</i>	T	T	X
Western Tanager	<i>Piranga ludoviciana</i>	T		X
Green-tailed Towhee	<i>Pipilo chlorurus</i>	T		X
Canyon Towhee	<i>Melospiza fusca</i>	T	T	X
Abert's Towhee	<i>Melospiza aberti</i>	T	T	X
Chipping Sparrow	<i>Spizella passerina</i>	T	T	X
Lark Sparrow	<i>Chondestes grammacus</i>	T		X
Black-throated Sparrow	<i>Amphispiza bilineata</i>	T	T	X
Song Sparrow	<i>Melospiza melodia</i>	T	T	X
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	T		X
Unidentified Sparrow	<i>Emberizidae</i>	T		X

Dark-eyed Junco	<i>Junco hyemalis</i>	S		X
Northern Cardinal	<i>Cardinalis cardinalis</i>	T	T	X
Pyrrhuloxia	<i>Cardinalis sinuatus</i>	S		X
Blue Grosbeak	<i>Passerina caerulea</i>	T		X
Great-tailed Grackle	<i>Quiscalus mexicanus</i>	T		X
Brown-headed Cowbird	<i>Molothru ater</i>	T	T	X
Hooded Oriole	<i>Icterus cucullatus</i>	T	T	X
Bullock's Oriole	<i>Icterus bullockii</i>	T	T	X
Unidentified Oriole	<i>Icterus sp.</i>	S		X
House Finch	<i>Carpodacus mexicanus</i>	T	T	X
Lesser Goldfinch	<i>Carduelis psaltria</i>	T	T	X
TOTALS (not including "Unidentified")		64	49	79

Recorded on transect = "T". Recorded only as "supplemental" to transect (but within 7B ranch) = "S". Recorded only on Arizona Game and Fish Department's Cooperative Bird Monitoring, Riparian Plot at 7B ranch (River Bosque, sub-area) in 2010 = P. Recorded overall = "X".

Table 2. Mammal and reptile species detected by Audubon's Arizona IBA Program, during survey dates of 2006-2010 (during avian surveys), within 7B Ranch, lower San Pedro River, Mammoth, Arizona.

Common Name	Species	Hot Springs Bosque Transect (925 m)	River Bosque Transect (924 m)	7B Ranch (comprehensive)
Black-tailed Jackrabbit	<i>Lepus californicus</i>	T		X
Coyote	<i>Canis latrans</i>		T	X
Javelina	<i>Pecari tajacu</i>	S		X
Western Diamondback Rattlesnake	<i>Crotalus atrox</i>	T		X

Recorded on transect = "T". Recorded only as "supplemental" = "S". Recorded overall = "X".

Table 3. The frequency of detected avian species (highest 20) during the Spring period, April 23-24, 2010 (early breeders and migrants present) at 7 B Ranch, lower San Pedro River, Mammoth, Arizona in 2010.

Common name	Scientific Name	Frequency of detection (#/linear km surveyed)
Lucy's Warbler	<i>Vermivora luciae</i>	29.2
Bell's Vireo	<i>Vireo bellii</i>	28.7
Mourning Dove	<i>Zenaidura macroura</i>	22.7
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	18.9
Northern Flicker	<i>Colaptes auratus</i>	8.7
Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>	7.6
Northern Cardinal	<i>Cardinalis cardinalis</i>	7.0
Chipping Sparrow*	<i>Spizella passerina</i>	6.5
Lesser Goldfinch	<i>Carduelis psaltria</i>	6.5
House Finch	<i>Carpodacus mexicanus</i>	6.0
Gila Woodpecker	<i>Melanerpes uropygialis</i>	5.4
Yellow-breasted Chat	<i>Icteria virens</i>	4.9
Song Sparrow	<i>Melospiza melodia</i>	4.3
Ladder-backed Woodpecker	<i>Picoides scalaris</i>	3.8
Hooded Oriole	<i>Icterus cucullatus</i>	3.2
Yellow Warbler	<i>Dendroica petechia</i>	3.2
Ruby-crowned Kinglet*	<i>Regulus calendula</i>	2.7
Warbling Vireo*	<i>Vireo gilvus</i>	2.7
Bewick's Wren	<i>Thryomanes bewickii</i>	2.2
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	2.2

(n=2 transects, "Hot Springs Bosque" and "River Bosque", each approx. 925 meters in length with a 50 meter survey truncation distance per side. To provide a more accurate assessment of territorial holding birds (if marked as such), we converted the total of a male/female pair of birds observed from "2" to "1" (thus equivalent to the more common detections of "1", which are assumed territory holding birds, typically that are singing, and with a mate unseen during the breeding season). The analysis also excluded juvenal birds.

*= Migrant, no confirmed local breeding within lower San Pedro River riparian corridor.

Table 4. The frequency of detected avian species (highest 20) during the Mid-summer period, July 17, 2010 (breeders) at 7 B Ranch, lower San Pedro River, Mammoth, Arizona in 2010.

Common name	Scientific Name	Frequency of detection (#/linear km surveyed)
Lucy' Warbler	<i>Vermivora luciae</i>	30.3
Bell's Vireo	<i>Vireo bellii</i>	28.1
Yellow-breasted Chat	<i>Icteria virens</i>	24.9
Gila Woodpecker	<i>Melanerpes uropygialis</i>	14.1
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	10.8
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	8.7
Yellow Warbler	<i>Dendroica petechia</i>	8.7
Northern Cardinal	<i>Cardinalis cardinalis</i>	8.7
Lesser Goldfinch	<i>Carduelis psaltria</i>	8.7
Mourning Dove	<i>Zenaidura macroura</i>	6.5
Song Sparrow	<i>Melospiza melodia</i>	6.5
White-winged Dove	<i>Zenaida asiatica</i>	5.4
Black-throated Sparrow	<i>Amphispiza bilineata</i>	5.4
Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>	4.3
Bewick's Wren	<i>Thryomanes bewickii</i>	4.3
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	4.3
Summer Tanager	<i>Piranga rubra</i>	4.3
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	3.2
Black Phoebe	<i>Sayornis nigricans</i>	3.2
Common Ground-Dove	<i>Columbina passerina</i>	3.2

(n=1 transects, "Hot Springs Bosque" of approx. 925 meters in length with a 50 meter survey truncation distance per side. To provide a more accurate assessment of territorial holding birds (if marked as such), we converted the total of a male/female pair of birds observed from "2" to "1" (thus equivalent to the more common detections of "1", which are assumed territory holding birds, typically that are singing, and with a mate unseen during the breeding season). The analysis also excluded juvenal birds.

Table 5. Avian species (*Passerine* species) of conservation status* occurring within the 7B Ranch and their date and month of highest abundance (n = 11 surveys, 2006-2010), lower San Pedro River, Mammoth, Arizona.

Common name	Scientific Name	Frequency of detection (#/linear km surveyed)	Date of highest abundance
Lucy's Warbler	<i>Vermivora luciae</i>	56.3	June 2007 (River bosque)
Bell's Vireo	<i>Vireo bellii</i>	31.4	April 2010 (River bosque)
Yellow Warbler	<i>Dendroica petechia</i>	8.7	July 2010 (Hot Springs bosque)
Abert's Towhee	<i>Melospiza aberti</i>	7.6	April 2009 (Hot Springs bosque)

To provide a more accurate assessment of territorial holding birds (if marked as such), we converted the total of a male/female pair of birds observed from "2" to "1" (thus equivalent to the more common detections of "1", which are assumed territory holding birds, typically that are singing, and with a mate unseen during the breeding season). We also excluded juvenal birds.

* Includes US ESA 2010, Audubon WatchList 2007, Arizona Game and Fish Department's Tier 1a & 1b Species of Greatest Conservation Need 2006, and the US Fish and Wildlife Service Birds of Conservation Concern of select Bird Conservation Regions (33 = Sonoran and 34 = Sierra Madrean) 2008 list.

Additional Avian Species of Conservation Status/Concern

Gray Hawk (*Asturina nitida*), (AZGFD Tier1b SGCN species), was first detected in June 2007 (Hot Springs & River bosques transects), and in the month April in 2008 (HS, sup.), 2009 (HS sup.), and 2010 (HS) thereafter. Attempts to find a nesting pair in the spring period 2007-2010, have not proved successful. It is probably likely Gray Hawks are nesting nearby along the lower San Pedro River, and (likely more than 1 pair) may be using the 7B bosque frequently for foraging habitat. Non-breeding sub-adult Gray Hawks have been observed within the 7B bosque as well (3 in 2009). Actual nesting habitat, large, tall, Fremont cottonwood (*Populus fremontii*) or Goodding willow (*Salix gooddingii*) trees, are very rare within the bosque, and may not be suitable in some factor (currently).

Swainson's Hawk (*Buteo swainsoni*), (Audubon WatchList-Yellow), was first detected in April 2010 (River bosque), and then again July 2010 (Hot Springs bosque). This species prefers to nest in landscapes with open habitat, especially

grasslands or within agricultural lands, such as alfalfa or similar croplands. It is possible a nesting Swainson's Hawk pair either nested within or very near the 7B Ranch in 2010. A large velvet mesquite (*Prosopis velutina*), or other large riparian tree, at the edge of open habitat would provide a suitable substrate for nest placement. Some foraging in more open areas of the bosque is also possible. Swainson's Hawk are nesting in other areas along the lower San Pedro River corridor (e.g., BHP Billiton), noted especially where riparian (mesic) vegetation becomes patchy or absent, thus open riparian strand type vegetation with bare ground is present, with nearby tall riparian trees available for nesting.

Yellow-billed Cuckoo (*Coccyzus americanus*), (AZGFD Tier 1a SGCN, USFWS BCC 2008, BCR 33 listed species) was first recorded within the 7B Ranch property only on July 17, 2010 (2 detections), as earlier Audubon surveys (2006-2010, n=12) did not detect them. Potential nesting habitat is present within the dense tree {Velvet mesquite, Net-leaf Hackberry (*Celtis laevigata*), and Desert elderberry (*Celtis spinosa*)} pockets of the bosque. As a late arrival species to the San Pedro valley (typically post June 15), our lack of mid-summer surveys is partly responsible for the limited detections over 2006-2010.

The **Southwestern Willow Flycatcher** (*Empidonax traillii extimus*) a federally endangered species (also, Audubon WatchList-Yellow, AZGFD Tier 1a SGCN) present in high densities along the lower San Pedro River corridor, but has not been detected on Audubon IBA surveys (n=12) at the 7B Ranch. Given the mostly dry conditions of the San Pedro River channel, and ephemeral flow conditions, dense cottonwood/willow habitat, and particularly Goodding willow stands adjacent to the channel have not developed. The above vegetation conditions constitute the preferred nesting habitat for this bird species on the lower San Pedro River. The Willow Flycatcher could find suitable stop-over habitat within the 7B Ranch, especially for foraging in the "hot springs" area (and other mesic riparian patches). Audubon IBA surveys were not of sufficient frequency during the migration period to assess this potential use by the Willow Flycatcher.

Northern Beardless-Tyrannulet (*Camptostoma imberbe*), was only once detected on Audubon IBA surveys, on July 7, 2007. This species of conservation status (USFWS BCC BCR34 2008), prefers dense riparian habitat of cottonwood-willow

or cottonwood-mesquite, and prefers foraging under a mid-story canopy with moist forest soil conditions. This specific habitat type combination is rare and/or ephemeral within the 7B Ranch.

Audubon's surveys only covered daylight time periods, and nocturnal surveys have not yet been completed. Habitat within the 7B bosque appears suitable for both **Elf Owl** (*Micrathene whitneyi*, an Audubon WatchList-Yellow species, and USFWS BCC BCR33 2008) and **Cactus Ferruginous Pygmy-Owl** (*Glaucidium brasilianum cactorum*, AZGFD Tier1b SGCN). Although for the Cactus Ferruginous Pygmy-Owl, regional population dynamics (a recently declined population) and present biogeography (remaining population known only west of the San Pedro valley), reduce the probability that this species persists or has (re) discovered this habitat. Still relatively recent nest records near Oracle Junction, Arizona, indicate that a nearby source population is possible for the lower San Pedro valley. **Western Screech-Owl** (*Otus kennicottii*) is a likely additional owl species that could find suitable habitat within the 7B bosque.

Management Issues Related to Birds at the 7B Ranch

Trespass cattle roaming throughout the property, sometimes present and sometimes not, appears as the primary "stressor" to the mesquite bosque bird community. This stressor is acting on specific vegetation (through foraging), and reducing understory vegetation abundance and density (through their congregations and travel patterns). Cattle can trample vegetation and eat grasses and forbs that are important components of the vegetation structural complexity, and part of the bosque vegetation community composition. Insects are the primary prey of the mesquite bosque bird community, and will suffer reductions due to loss of important grass and forb substrate due to cattle grazing. Eliminating trespass cattle should be a goal for good bird habitat management within the bosque.

Another potential stressor to birds is invasive plant species. Although, salt cedar or tamarisk (*Tamarix ramosissima*) is present, it presently is of low occurrence, and may not be influencing bird community dynamics or abundance. Managers should be on the lookout for new invasive species, and these may include non-native grasses (a fire danger), and giant reed (*Arundo donax*), which could grow into

large patches taking up space and using significant near surface groundwater, while providing no habitat value to birds.

We have heard bullfrogs (*Rana catesbeiana*) during bird surveys (6/9/2007), but not in 2008-2010. Bullfrogs may greatly alter the community composition of amphibians and reptiles, but may have minor impact on the bird community (they may –rarely– prey on small birds within or near water). They are being excluded and managed, which should benefit the entire biotic community of the bosque.

Off-road vehicle use is absent, but this could in the future become a threat to bird habitat, as well as increase the risk of fire, due to human carelessness. OHV use is known to damage, trample, and reduce understory and mid-story vegetation, which will reduce bird habitat in terms of both nesting cover and foraging habitat (reducing the habitat substrate for insects, the prey of many bird species). The fire threat could be the most severe threat, as a fire started at a dry time of year, could devastate the bosque in terms of vegetation loss.

Groundwater levels are critical to mesquite bosque vegetation health, biomass, and vertical development. Tall stature mesquite and hackberry will need a depth to groundwater of less than 15 meters (Stromberg 1993). For the continued mesquite community composition and structure, ground water levels should be monitored, and surrounding properties and communities should be aware of the critical nature of river and riparian habitat needs in regards to high groundwater levels. A buffer protection zone approach, with a goal to conserve groundwater near and adjacent to the riparian corridor (the corridor of vegetation dependent on high groundwater levels) is suggested.

Currently, the 7B bosque has avian habitat in near excellent condition, and it is supporting the full avian community composition (of the region) associated with this habitat type. Continued advances in continuity of management regimes, and bringing contiguous properties into conservation management, under a San Pedro River riparian protection area, will benefit bird populations using the entire corridor. This is particularly critical for large, far-ranging bird species (requiring differing nesting and foraging habitats) with populations within the San Pedro River corridor, such as Gray Hawk, Common Black-Hawk (*Buteogallus*

anthracinus), Great Blue Heron, and others. The 7B ranch is a unique very high quality mesquite bosque community of tremendous habitat value to birds, and its conservation and protection is critical to the integrity and value of the Lower San Pedro River Important Bird Area. Audubon's IBA program thus considers its management for birds and other wildlife as extremely important for regional biodiversity conservation, including for some bird species of high conservation concern in Arizona.

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