

BIRDING THE SANTA CRUZ FLATS



By Doug Jenness

The Santa Cruz Flats, located in Pinal County between Tucson and Casa Grande, is a well-known and heavily birded area in south-central Arizona. Hundreds of birders check out this expansive agricultural location every year, primarily during the winter months. Audubon groups from both the Phoenix and Tucson areas organize field trips there, and visitors come from other states. From the records that are available, a few going back more than 100 years, 289 bird species have been reported. It may seem surprising, then, to publish an article about birding an area already familiar to many people. The main reason is that numerous habitats are found at the Flats, and birders are looking for more details on finding and accessing the best places, including those that are out-of-the-way. Another consideration is that Pinal County is assessing what is to become of this farmland as population grows.

It projects transforming this area to medium- and heavy-density residential communities in the coming decades (Pinal County Board of Supervisors et al. 2009). This coincides with the plan by Arizona, Nevada, and the U. S. Department of Transportation to build Interstate 11 from Wickenburg to Nogales. Most options show the new highway cutting through the Santa Cruz Flats (ADOT and NDOT 2015). This article summarizes avian use of this area and the opportunities for people to enjoy it. Wildlife and recreational value should be considered in the long-term plans for development of the Santa Cruz Flats (Figure 1).



Figure 1. Sawtooth Mountains and cotton field. Much of the Santa Cruz Flats is planted in crops with mountains in the background, 20 July 2018. Photo by Doug Jenness

BACKGROUND

Although some ambiguity exists as to what should be included in the "Santa Cruz Flats," for the purposes of this article it encompasses an area roughly bordered on the south by the Samaniego Hills and West Silverbell Mountains, the west by the Sawtooth Mountains, the north by Houser Road, and the east by I-10 from Red Rock to Wheeler Road and then Wheeler Road to Houser Road. This area encompasses about 300 mi². It includes 4 towns: Eloy (19,168 pop.), Arizona City (10,489 pop.), Red Rock (2,710 pop.), and Picacho (342 pop.). The elevation ranges from 1,850 ft near the town of Red Rock to 1,450 ft in the northeast corner of the area. Much of the acreage at the Flats is state trust land leased by farmers or is private property (Figure 2).

Santa Cruz Flats

Figure 2. Map



The Flats are named for the Santa Cruz River, which starts in southern Arizona, flows south into Mexico, turns north and flows through Tucson, and then northwest through Marana and into Pinal County before merging with the Gila River. For several hundred years the river has not had a consistent channel through the Santa Cruz Flats. Early European travelers and settlers noted the lack of surface water, but found waterholes with underground flows. During the summer monsoon storms and winter rains, water spread across the flat terrain in many washes and channels (Wood et al. 1999; Logan 2002). This water helped nourish seasonal annual grasses creating a habitat known as the Sonoran Desert grassland. There is some evidence that this habitat may have attracted pronghorn (*Antilocapra americana*), Masked Bobwhite (*Colinus virginianus ridgwayi*), and other grassland species (Brown 2014).

Settlers began farming this area in the late 19th and early 20th centuries, grazing cattle and cultivating crops. They dug wells to irrigate their fields and water their livestock. As the wells dried up, they sought other means to harvest water. In 1910, William Greene, a mining and cattle magnate, financed the construction of a 13-mile canal to channel water to a reservoir for crop irrigation. The Greene Canal began a short distance northwest of where the river now crosses Sasco Road and ended at Greene Reservoir, near what is now Sunland Gin Road between Greene Reservoir and Pearce roads. This project failed, however, when flood waters during the winter of 1914-15 rechanneled the Santa Cruz, leading to the destruction of the water delivery system into Greene's Reservoir (Wood et al. 1999; Logan 2002). The canal, however, remains a major physical feature of the area; during rainy seasons much water runs through it, augmented by fluctuating flows from Tucson's Roger Road and Ina Road water reclamation facilities (Figure 3). In years when there is abnormally heavy rainfall, the entire area—roads, fields, and feedlots—are flooded, which notably occurred in 1977 and 1983 (Logan 2002).



Figure 3. Greene Canal looking west from Sunland Gin Road, flowing with monsoon water, 15 August 2018. Photo by Doug Jenness



Figure 4. Abundant summer rain often brings a reminder that the Santa Cruz Flats was once dominated by Sonoran grassland savanna, 20 August 2018. Photo by Doug Jenness

After the collapse of Greene's Reservoir, farmers continued to irrigate by digging deeper wells, using steam and then diesel power. In the years after World War II, safflower (*Carthamus tinctorius*), along with maize (*Zea mays*) and wheat (*Triticum aestivum*) were major crops. However, agriculture substantially expanded in the 1980s when the Central Arizona Project started transporting Colorado River water from Lake Havasu to the lower Santa Cruz basin (Logan 2002). About 180 mi² are now devoted to irrigated agriculture. Cotton (*Gossypium* spp.) and alfalfa (*Medicago sativa*) became the dominant crops, although maize and wheat, along with barley (*Hordeum vulgare*) and sorghum (*Sorghum bicolor*), share the area with sod farms, several pecan groves (*Carya illinoensis*), a small date grove (*Phoenix dactylifera*), a dairy farm, two sheep farms, and a large cattle feedlot. This has helped make Pinal County one of the principal agricultural areas in the state. Adjacent to the active fields, fallow parcels primarily host mesquite (*Prosopis* spp.), creosote bush (*Larrea tridentata*), wolfberry (*Lycium* spp.), fourwing saltbush (*Atriplex canescens*), Fremont's desert thorn (*Lycium fremontii*), and other shrubs. Some never-cultivated areas, particularly on the bajadas to the north and south, are dominated by saguaro (*Carnegiea gigantea*), palo verde (*Parkinsonia* spp.), mesquite, ironwood (*Oleyna tesota*), and triangle-leaf bursage (*Ambrosia deltoidea*). Cattle graze in this habitat, supported by a scattering of livestock tanks. In some areas, when ample monsoon rain occurs, annual native grasses cover many acres of unfarmed land, a reminder of the grasslands that once dominated the area (Figure 4). Occasionally, ample winter rains yield acres of blooming wildflowers (Figure 5).



Figure 5. Coulter's Globe Mallow (*Spaeralcea coulteri*). Plentiful winter and spring rains nourish an explosion of blooming wildflowers, 16 March 2019. Photo by Doug Jenness

Agricultural disruption of the original natural environment has created many different habitats, increasing bird diversity in the area. Grain fields offer food to many rodents and small birds, which in turn provide prey to raptors, many using telephone and power poles for perches. The maze of water features—irrigation ditches, flooded fields, cattle tanks, and urban lakes and ponds—attract hundreds of waterbirds, including waders, cranes (Figure 6), shorebirds, ducks and geese, and cormorants. The recent halt to pesticide spraying for pink bollworm and other pests in the cotton fields benefits birds and other wildlife in the area. Spraying previously occurred on average 12 times a season. Pink bollworm was eradicated with nontoxic means by 2018 (USDA 2018; Mace 2018).

It remains to be seen what effects Arizona's mandated Drought Contingency Plan will have on agriculture in the Santa Cruz Flats. The plan, ratified by the state legislature and the governor in January 2019, will reduce water from the Central Arizona Project to farmers by 60% for 3 years and 100% after that if water levels drop further at Lake Mead. Farmers' only recourse will be to tap aquifers again, which creates surface subsidence and dangerous fissures that adversely affect the natural environment (azcentral 2019).

At least 72 bird species are confirmed or probable breeders at the Santa Cruz Flats. Twelve species are on the Arizona Bird Committee's review list as of February 2019 (Figure 7). The 26 species of raptor—hawks, falcons, kites, and owls—many reported here regularly, draw birders to the area. Most notable is Crested Caracara (*Caracara cheriway*). It congregates in the winter at the Flats in larger numbers and with more regularity than anywhere else in the state (Figure 8). It can be viewed readily from roadsides. Caracaras breed in the area, but the numbers in winter exceed breeding pairs and their offspring (Jeness 2015a), a phenomenon currently under investigation (Jeness et al. 2018). Swainson's Hawk (*Buteo swainsoni*), which migrates through the area in spring and fall, sometimes in flocks exceeding 100 birds, is likely nesting in small numbers in the area. A 1 June-15 July study in 2017 and 2018 revealed several adult pairs loyal to specific sites, suggesting breeding (Jeness unpub. notes). Additionally, during this 6-week summer period, migrants are unlikely. White-tailed Kite (*Elanus leucurus*) was regularly reported until 2011, but since has been infrequent. A pair of nesting White-tailed Hawks (*Geranoaetus albicaudatus*) was documented in the Red Rock area in 1897, but has not been reported in the county since (Breninger 1899; Brown and Glinski 2009). At least one Harlan's Red-tailed Hawk (*B. jamaicensis harlani*), which breeds in Alaska and northwestern Canada, shows up every winter. Rough-Legged Hawk (*B. lagopus*) is casual and has been reported a few times. Gray Hawk (*B. nitidus*) has only been reported twice. Black Vultures reside at the flats year-round and breed in the surrounding mountains. Sometimes flocks of well over 100 can be observed. Turkey Vultures are present in large numbers during spring and fall migration and throughout summer, with only a handful reported in the winter. The most unusual raptor sightings were of a Spotted Owl (*Strix occidentalis*, Jenness 2014) and a Northern Saw-whet Owl (*Aegolius acadicus*, Johnson 2007). Raptor numbers increase in winter with migrants passing through or remaining to feed on abundant rodents and wintering passerines (Figure 9—Ferruginous Hawk). Since 2007 an annual one-day count of raptors in January has been providing a snapshot of their diversity and numbers. By a wide margin, the count in 2016 tallied the most raptors: 752 of 16 species. Red-tailed Hawk (*B. jamaicensis*) was the most numerous with 312 individuals (AZFO 2007-19; Jenness 2015b).



Figure 6. Sandhill Cranes. Many water sources attract waterbirds, including waders, cranes, shorebirds, ducks and geese, and cormorants. 31 January 2017. Photo by Marceline VandeWater

Arizona Review Species Reported at Santa Cruz Flats

- American Golden-Plover
- Pacific Golden-Plover
- Upland Sandpiper
- Ruddy Turnstone
- Ruff
- White-rumped Sandpiper
- Wedge-rumped Storm-petrel
- White-tailed Hawk
- Cave Swallow
- Rusty Blackbird
- Bobolink
- Black-throated Green Warbler

Source: AZFO 2019

Figure 7. Twelve species on the Arizona Bird Committee's review list have been reported at the Santa Cruz Flats.



Figure 8. Crested Caracara feeding in freshly disked cotton field, 19 January 2019. Photo by Muriel Neddermeyer

Figure 9. Ferruginous Hawk. Many raptors winter at Santa Cruz Flats. 28 December 2013. Photo by Muriel Neddermeyer

Many nonraptors also are found at the Santa Cruz Flats. Since the 1990s individual Tropical Kingbirds (*Tyrannus melancholicus*) had been reported, but it wasn't until 2012 that up to a couple dozen pairs were discovered nesting in pecan trees, planted in single rows along roadsides (Jenness 2015c). The most sought-after shorebird is the Mountain Plover (*Charadrius montanus*), typically found at the sod farms. Reports of this migratory species go back to the early 1980s, with annual sightings ranging from 6 August to 7 April (Table 1). Some of the plovers winter there; others are likely passing through. The greatest numbers are observed December-February, with 177 the highest single-day total on 5 February 2005.

Table 1 The Early/Late Arrival and Departure Dates of Selected Bird Species at Santa Cruz Flats

Species	Arrival	Year	Departure	Year
Mountain Plover	6-Aug	1998	7-Apr	2017
Northern Harrier	30-Jul	2008	17-May	1994
Sharp-shinned Hawk	7-Oct	2017	22-Apr	2012
Swainson's Hawk	24-Feb	2018	31-Oct	2008
Ferruginous Hawk	5-Sep	2018	28-Apr	2013
Lewis's Woodpecker	28-Oct	2017	19-Apr	2018
Tropical Kingbird	5-May	2018	16-Sep	2017
Western Kingbird	17-Mar	2013	1-Dec	2013
Bell's Vireo	6-Mar	2014	3-Oct	2012
Mountain Bluebird	29-Oct	2011	6-Mar	2019
Sage Thrasher	13-Oct	2005	2-Apr	2019
Yellow-breasted Chat	22-Apr	2014	31-Jul	2014
Sagebrush Sparrow	16-Oct	2015	10-Mar	2001
Lark Bunting	8-May	2006	9-Aug	2015
Lucy's Warbler	9-Mar	2016	26-Oct	2008

Source eBird (2019)

Birders hoping to find rare shorebirds at the sod farms, in flooded fields, or in ephemeral ponds are occasionally rewarded. Notable single sightings are Pacific Golden-Plover (*Pluvialis fulva*), 1998; Ruff (*Philomachus pugnax*), 2010; White-rumped Sandpiper (*Calidris fuscicollis*), 2016 (Figure 10); and Ruddy Turnstone (*Arenaria interpres*), 2017. Reported twice are American Golden-Plover (*Pluvialis dominica*), 1999, 2008 and Snowy Plover (*Charadrius alexandrinus*), 2017, 2018; and 3 times for Upland Sandpiper (*Bartramia longicauda*), 2000, 2011, 2013.

Ruddy Ground-Dove (*Columbina talpacoti*) is sometimes reported, and one breeding record (2006) has been documented (pers. corr. P. Deviche). At the northern edge of its range, its appearance is erratic. Several years ago, Sprague's Pipits (*Anthus spragueti*) were discovered wintering in grass hayfields adjacent to the Evergreen Turf sod farm, and birders should continue to be on the lookout for them (Figure 11). Mountain Bluebird (*Sialia currucoides*), Lark Bunting (*Calamospiza melanocorys*), and Lawrence's Goldfinch (*Spinus lawrencei*) are irregular occurrences, some winters appearing in large numbers and in others not present at all. Sparrows winter in the farm fields and desert habitat, including Sagebrush Sparrow (*Artemisiospiza nevadensis*), which is partial to saltbush flats. Following monsoon rains in the summer of 2018, Cassin's Sparrows (*Peucaea cassinii*), grassland breeders, were heard singing at alfalfa fields in at least 2 locations. Although presence in this unusual habitat has a few precedents elsewhere (Dunning et al. 2018), it was a first for the Flats and could not have resulted in successful nesting as the alfalfa fields are normally cut every four weeks. Other rare passerines reported at the Flats, especially in the riparian corridors and in the shrubbery around farmhouses viewed from public roads, include Rufous-backed Robin (*Turdus rufopalliatu*s); Black-throated Blue Warbler (*Dendroica caerulescens*); Black-throated Green Warbler (*Dendroica virens*); Palm Warbler (*Dendroica palmarum*); Orchard Oriole (*Icterus spurius*); Cave Swallow (*Petrochelidon fulva*); and Harris's Sparrow (*Zonotrichia querula*). Chihuahuan Raven (*Corvus cryptoleucus*) is an occasional vagrant. Although many Western Meadowlarks (*Sturnella neglecta*) are seen in the winter and a few nest in the area, Eastern Meadowlarks (*Sturnella magna liliana*e), typically found in ones and twos, are reliably reported only occasionally in the winter. LeConte's Thrasher (*Toxostoma lecontei*), discovered nesting in saltbush habitat in the 1990s, has not been reported since. The Mexican Duck (*Anas platyrhynchos diazi*), still considered a subspecies of Mallard by the American Ornithological Society, has been reported nesting at the Flats (pers. corr. D. Brown).



Figure 10. White-rumped Sandpiper. One of the shorebird rarities reported at the Santa Cruz Flats, 15 May 2016. Photo by Muriel Neddermeyer



Figure 11. Sprague's Pipit. Observed the last several winters in Bermuda grass hayfield, 15 December 2018. Photo by Brian Johnson, Macaulay Library at Cornell Lab (ML 129091661)

BIRDING LOCATIONS

Effectively birding the Santa Cruz Flats can be challenging; it is too large to cover in one day. Habitat also changes as the acreage for each crop varies from year to year, and the stage crops are at shifts week to week, sometimes even more often. A flooded field filled with hundreds of shorebirds one day may be dry a day or two later, and the birds are gone. Most birders visit in winter when raptors, sparrows, and Mountain Plovers are most numerous. However, spring and fall migration also can be rewarding for finding shorebirds and passerines. Rarities have been reported in the hot summer months, including Rose-breasted Grosbeak (*Pheucticus ludovicianus*) and Upland Sandpiper. Checking weather reports for rainfall and wind is important as many of the dirt roads can become dangerously muddy or dusty. The main roads are maintained by Pinal County and open to the public. Farmers and farm workers have been hospitable to birders, and birders should reciprocate by respecting property rights and not blocking roads with vehicles, scopes, or cameras. Moreover, nesting birds should not be disturbed (Glinski and Smith 1976; American Birding Association 2019). Coming from Tucson to the south, the closest access is Red Rock (Exit 226) off I-10. There is a choice of exits from the north off I-10: Sunland Gin Road (Exit 200), Toltec Highway (Exit 203), Sunshine Road (Exit 208), and Picacho (Exits 211 and 212). The area may be best looked at in several sections.

Southeast Route

The southeast corner includes some of the best and most birded spots at the Santa Cruz Flats. After exiting I-10 at Red Rock, take Sasco Rd. west 3 mi to the Red Rock cattle feedlot, which has been there since 1964. In the winter this site attracts thousands of blackbirds and sparrows and hundreds of doves, including Eurasian Collared-Dove, a relatively recent arrival (Jenness 2005). Ruddy Ground-Dove has also been reported there. At the intersection of Coachway and Sasco roads, Black Vultures can sometimes be seen in cottonwoods at the feedlot's annex by scoping south. Sasco Road continues west to the San Pedro River, where an extensive riparian corridor dominated by Goodding's willow (*Salix gooddingii*) and Mexican palo verde (*Parkinsonia aculeata*) attracts nesting Lucy's Warbler (*Oreothlypis luciae*), Bell's Vireo (*Vireo bellii*), Yellow-breasted Chat (*Icteria virens*), and other species. It is a good site for migrant warblers and vireos, roosting Barn Owls (*Tyto alba*), and occasionally in winter such rarities as Louisiana Waterthrush (*Parkesia motacilla*). Unexpected visitors have included Dusky-capped Flycatcher (*Myiarchus tuberculifer*) and Thick-billed Kingbird (*Tyrannus crassirostris*). A couple of miles beyond the river crossing, ruins of the old copper smelter town of Sasco can be seen. The town, named for the Southern Arizona Smelting Company, was a thriving community of up to 600 in the early 1900s (USGS 2019).

Returning to the feedlot, take Coachway Road west to Cripple Creek Road, then head north to Baumgartner Road and head west. Along this route raptors, sparrows, and other birds may be seen. In 3.9 mi you will come to La Osa Ranch Road. Go 0.6 mi south to the Santa Cruz River corridor. Many of the large willows here recently died, but some new saplings are beginning to grow. Nesting Lucy's Warblers, Bell's Vireo, and Yellow-breasted Chat can be found here as well as migrant warblers, thrushes, wrens, and flycatchers.

Returning to Baumgartner Road, it is a short distance to Wheeler Road. This intersection marks the southeast corner of Lamoreaux Farms, a combined cattle, alfalfa, cotton, and pecan operation. The barnyard and buildings, surrounded by many shrubs and pecan trees, have attracted many birds, including Rufous-backed Robin, Black-throated Blue Warbler, American Redstart (*Setophaga ruticilla*), and Ruddy Ground-Dove. An 8-mile circuit around the farm's fields and groves along Baumgartner, Wheeler, Curtis, Fast Track, and Greene Reservoir roads and Picacho Highway can be rewarding. Much of this route is lined with rows of pecan trees that separate the road from cotton and alfalfa fields. Migrants and nesting birds are attracted to the trees, including Tropical Kingbirds, orioles [including Hooded (*Icterus cucullatus*), Bullock's (*Icterus bullockii*), and Orchard], woodpeckers, and owls and other raptors. The fields draw scores of Common Ravens and sometimes Cattle Egret (*Bubulcus ibis*), White-faced Ibis (*Plegadis chihi*), Sandhill Crane (*Grus canadensis*), and other waterbirds. Desert scrub along Picacho Highway has resident Bendire's Thrashers (*Toxostoma bendirei*). When it has water, a small pond just west of Picacho Highway on Greene Reservoir Road attracts Marsh Wren (*Cistothorus palustris*), Sora (*Porzana carolina*), Song Sparrow (*Melospiza melodia*), Common Yellowthroat (*Geothlypis trichas*), blackbirds, swallows, and waterfowl.

Navigating the Central Flats

Traveling Pretzer Road 5 mi from Picacho Highway brings you to Tweedy Road at the southeast corner of Evergreen Turf sod farm. This 1 mi² farm can be viewed easily from the perimeter roads: Tweedy Road on the east, Hotts Road on the north, Pretzer Road on the south, and depending on road conditions, Curry Road on the west side. From these roads, good viewing is possible, although often a scope is useful. On the east side, two ponds may have waterfowl and shorebirds, and one small pond on the north side has cattails and occasionally Common Gallinule (*Gallinula galeata*). Birding here depends a lot on the season and the condition of the fields. Burrowing Owls (*Athene cunicularia*) can usually be seen year-round. Occasionally, up to three species of longspur have been observed here in winter. This is the main place to find Mountain Plovers at the Flats. Another sod farm, West Pacific Turf is adjacent to Evergreen Turf to the south. Also 1 mi², it includes a farmyard and a pond along Tweedy Road on the east side that warrant checking out. Driving along the west side of this sod farm on Tweedy Road offers the chance of seeing shorebirds, egrets, and Burrowing Owls. A smaller section of this sod farm at Greene Reservoir and Toltec Buttes roads, formerly called Western Sod Farm, also can be checked for shorebirds.

South of the sod farms, there are several places to explore. A 1-mi stretch along Curry Road between Greene Reservoir and Curtis Roads and a 0.5-mi section of Tweedy Road south of Curtis Road have rows of pecan trees that attract nesting Tropical Kingbirds in summer and Merlins (*Falco columbarius*), woodpeckers, and other visitors in winter. Taking Eleven-Mile Corner Road south 0.8 mi from Curtis Road brings you to a crossing of the Greene Canal, where water is often running. Although willows or cottonwoods are not found here, the large tamarisks (*Tamarisk* spp.) provide cover for many birds. From this location a direct road runs along the canal's dike taking you to Sunland Gin Road. This drive, which may produce owls and other raptors, sparrows, herons, etc., is underbirded and may be fun for the adventurous. Driving along Curtis and Greene Reservoir roads, especially in winter, many raptors can often be spotted. A pond at the corner of Greene Reservoir and Sunland Gin roads, usually has some water in the rainy seasons, and can host Sora, Common Yellowthroat, American Coot (*Fulica americana*), ducks, and sparrows.

Exploring the Southwest Corner

Driving south 1.5 mi from Greene Reservoir Road along Sunland Gin Road, a long flood-control pond located on the east side of the road has water during the monsoon season and sometimes in winter. It can attract shorebirds and in August 2012 hosted a Roseate Spoonbill (*Platalea ajaja*). Continuing on Sunland Gin Road to Pearce Road, turn west, and follow the road for a mile. The ditches along this stretch, especially at the end of the road, usually have water during the monsoon season, which may attract herons, sandpipers, and even sometimes Eared Grebe (*Podiceps nigricollis*) and Greater White-fronted Goose (*Anser albifrons*). Returning to Sunland Gin, take Pearce east for a mile between cotton fields to the north and alfalfa fields to the south. From late October to the end of April, hundreds of sheep are pastured in the alfalfa fields. From October into December the ewes are lambing, leading to a few dead lambs and ewes as well as placentas, which attract Black Vultures (*Coragyps atratus*), Crested Caracaras, and occasionally Golden Eagles (*Aquila chrysaetos*). During fall migration from late July into October, scores of Swainson's Hawks can be seen here. Dozens of Western Kingbirds (*Tyrannus verticalis*) also congregate here in fall migration. At the end of Pearce take Overfield Road (unmarked) 0.5 mi north to a farm pond that usually has some water and a few shorebirds and waterfowl.

Traveling the Northwest Flats

Returning north on Sunland Gin Road, many raptors perch on power poles along the road. At Pretzer go east for a mile where a pecan grove attracts scores of Common Ravens (*Corvus corax*) and sometimes foraging Crested Caracaras. This is part of Lucy Farms, an enclave of the Tohono O'odham Nation not contiguous with the rest of the Nation's land. A cattle pond 0.7 mi north of Pretzer along Sunland Gin Road has water in the rainy seasons and is worth checking. Some years Crissal Thrasher (*Toxostoma crissale*) has been known to nest there. Farther north turn east at Harmon Road and drive along a 2-mi stretch of saltbush flats that attract wintering Sagebrush Sparrows (*Artemisiospiza nevadensis*).

From Sunland Gin Road take Harmon Road west to Lamb Road and then north to Phillips Road and east back to Sunland Gin Road. Along Harmon Road there is a cattle paddock that sometimes attracts caracaras. In fields along the west side of Lamb, raptors and sometimes waterbirds can be seen. On the east side, a couple of large clumps of tamarisk offer refuge to roosting owls and wintering passerines. Nearby small ponds may have herons, egrets, Marsh Wrens, and sparrows.

On Sunland Gin Road continue north into Arizona City and turn west on San Lázaro Drive. In 0.3 mi you will be on the south side of Paradise Lake. Although most of the lake is surrounded by homes, several vacant lots remain from which the lake can be viewed. Both Neotropic and Double-crested Cormorants hang out here, as well as many other waterbirds. Three species of merganser, Snow Goose (*Chen caerulescens*), White-fronted Goose, Horned Grebe (*Podiceps auritus*), Common Loon (*Gavia immer*), Brown Pelican (*Pelecanus occidentalis*), and American White Pelican (*Pelecanus erythrorhynchos*) have been observed here. Terns and gulls also have been reported, including Heermann's Gull (*Larus heermanni*).

Returning to Sunland Gin Road, head north to Battaglia Road and go west 2 mi to Henness Road and north 0.5 mi to Sommerfield Road. Waste water treatment ponds are located at this intersection, which deserve checking for shorebirds and waterbirds. American Goldeneye (*Bucephala clangula*) has been observed here.

Wandering the Northeast Area

The single dairy farm at the Santa Cruz Flats, Caballero Dairy, opened in 2010 on Harmon Road. In its first years dead cattle and dried sludge were dumped at a nearby vacant lot, which attracted many vultures and caracaras, but that practice has since ended. The dairy's sludge ponds, which can be viewed from Curry Road 0.5 mi south of Harmon Road still attract many shorebirds. Snowy Plover (*Charadrius nivosus*), Ruddy Turnstone (*Arenaria interpres*), and Short-billed Dowitcher (*Limnodromus griseus*) have been reported there in fall migration, and unexpectedly, a Hermann's Gull showed up for a few hours one January day in 2018.

From the dairy farm, take Harmon east to Picacho Highway and north to Nutt Road. Go west on Nutt Road for 1.0 mi, turn right and go 2.0 mi on Barrett Road to Phillips Road. Much of the Nutt-Barrett route is bounded by the Daybreak Pecan Co. grove, which attracts wintering woodpeckers, including occasionally Lewis's Woodpecker (*Melanerpes lewis*), and migrating passerines. Many of these birds also fly back and forth to mesquites and palo verdes opposite the pecan grove. A couple of uncultivated fields attract sparrows and raptors, including Swainson's Hawks. A young Zone-tailed Hawk hung out here in the summer of 2018 (Figure 12). One mile from Barrett along Phillips Road there is a small marshy area where both Grasshopper Sparrow (*Ammodramus savannarum*) and Swamp Sparrow (*Melospiza georgiana*) have been reported.



Figure 12. Immature Zone-tailed Hawk, 1 June 2018. Photo by Doug Jenness



Figure 13. Curtis Road. Some birders have their own favorite corners, wet spots, or roadsides to check for birds, 6 March 2019. Photo by Doug Jenness

CONCLUSION

Although some birders focus on the best-known popular spots at the Santa Cruz Flats, such as the Evergreen Turf sod farm, the Wheeler-Baumgartner area, or the Red Rock feedlot, others prefer randomly wandering the roads, particularly the less traveled ones. A few have their own favorite corners, wet spots, or roadsides to check (Figure 13).

In addition to birds, the Santa Cruz Flats is home to many mammals, reptiles, and amphibians, and supports an assortment of native plants (Brown et al. 2017). Desert bighorn sheep (*Ovis canadensis*) roam the Western Silverbell and Sawtooth mountains and occasionally are reported in farm fields. Badger (*Taxidea taxus*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), mule deer (*Odocoileus hemionus*), collared peccaries (*Pecari tajacu*), and both black-tailed (*Lepus californicus*) and antelope (*L. alleni*) jackrabbits are seen. Highlights among the many reptiles are desert iguana, (*Dipsosaurus dorsalis*), long-nosed leopard lizard (*Gambelia wizlizenii*), and rattlesnakes (*Crotalus* spp.). Couch's spadefoot (*Scaphiopus couchii*), Sonoran desert toad (*Incilius alvarius*), and Great Plains toad (*Anaxyrus cognatus*) are common amphibians observed during the summer monsoon season.

Three new bird species were reported at the Santa Cruz Flats in 2018—Cassin's Sparrow, Tundra Swan (*Cygnus columbianus*), and Rusty Blackbird (*Euphagus carolinus*), if accepted by the ABC. As birders continue to visit this area, it is likely other new species will be observed, adding to the list. When Pinal County finalizes and implements its development plans, hopefully the magnificent natural diversity of this area will be maintained, for the benefit of wildlife and so many more people will come to enjoy it.

ACKNOWLEDGMENTS

I appreciate the suggestions of David Brown, Richard Glinski, and David Pearson, which helped improve the article.

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APPENDIX A

289 SPECIES REPORTED AT SANTA CRUZ FLATS

(as of 9 April 2019)

* Review species

! Report Currently Under ABC Review

Snow Goose	Canvasback	Rock Pigeon
Ross's Goose	Redhead	Eurasian Collared-Dove
Greater White-fronted Goose	Ring-necked Duck	Inca Dove
Canada Goose	Lesser Scaup	Common Ground-Dove
Tundra Swan	Bufflehead	Ruddy Ground-Dove
Wood Duck	Common Goldeneye	White-winged Dove
Blue-winged Teal	Hooded Merganser	Mourning Dove
Cinnamon Teal	Common Merganser	Yellow-billed Cuckoo
Northern Shoveler	Red-breasted Merganser	Greater Roadrunner
Gadwall	Ruddy Duck	Lesser Nighthawk
American Wigeon	Gambel's Quail	Common Poorwill
Eurasian Wigeon	Pied-billed Grebe	Vaux's Swift
Mallard	Horned Grebe	White-throated Swift
--Mexican Mallard	Eared Grebe	Black-chinned Hummingbird
Northern Pintail	Western Grebe	Anna's Hummingbird
Green-winged Teal	Clark's Grebe	Costa's Hummingbird

Broad-tailed Hummingbird	Heermann's Gull	Northern Saw-whet Owl
Rufous Hummingbird	Ring-billed Gull	Belted Kingfisher
Broad-billed Hummingbird	California Gull	Lewis's Woodpecker
Sora	Black Tern	Acorn Woodpecker
Common Gallinule	Forster's Tern	Gila Woodpecker
American Coot	Common Loon	Yellow-bellied Sapsucker
Sandhill Crane	Wedge-rumped Storm-Petrel *	Red-naped Sapsucker
Black-necked Stilt	Neotropic Cormorant	Ladder-backed Woodpecker
American Avocet	Double-crested Cormorant	Northern Flicker
Black-bellied Plover	American White Pelican	Gilded Flicker
American Golden-Plover *	Brown Pelican	Crested Caracara
Pacific Golden-Plover *	Great Blue Heron	American Kestrel
Snowy Plover	Great Egret	Merlin
Semipalmated Plover	Snowy Egret	Peregrine Falcon
Killdeer	Cattle Egret	Prairie Falcon
Mountain Plover	Green Heron	Dusky-capped Flycatcher
Upland Sandpiper *	Black-crowned Night-Heron	Ash-throated Flycatcher
Whimbrel	White-faced Ibis	Brown-crested Flycatcher
Long-billed Curlew	Roseate Spoonbill	Tropical Kingbird
Marbled Godwit	Black Vulture	Cassin's Kingbird
Ruddy Turnstone *	Turkey Vulture	Thick-billed Kingbird
Ruff *	Osprey	Western Kingbird
Stilt Sandpiper	White-tailed Kite	Olive-sided Flycatcher
Sanderling	Golden Eagle	Western Wood-Pewee
Dunlin	Northern Harrier	Willow Flycatcher
Baird's Sandpiper	Sharp-shinned Hawk	Hammond's Flycatcher
Least Sandpiper	Cooper's Hawk	Gray Flycatcher
White-rumped Sandpiper *	Bald Eagle	Dusky Flycatcher
Pectoral Sandpiper	Harris's Hawk	Pacific-slope Flycatcher
Semipalmated Sandpiper	White-tailed Hawk*	Black Phoebe
Western Sandpiper	Gray Hawk	Eastern Phoebe
Short-billed Dowitcher	Swainson's Hawk	Say's Phoebe
Long-billed Dowitcher	Zone-tailed Hawk	Vermilion Flycatcher
Wilson's Snipe	Red-tailed Hawk	Loggerhead Shrike
Spotted Sandpiper	--Harlan's Hawk	Bell's Vireo
Solitary Sandpiper	Rough-legged Hawk	Hutton's Vireo
Lesser Yellowlegs	Ferruginous Hawk	Cassin's Vireo
Willet	Barn Owl	Plumbeous Vireo
Greater Yellowlegs	Western Screech-Owl	Warbling Vireo
Wilson's Phalarope	Great Horned Owl	American Crow
Red-necked Phalarope	Burrowing Owl	Chihuahuan Raven
Bonaparte's Gull	Spotted Owl	Common Raven

Horned Lark	Pine Siskin	Scott's Oriole
Purple Martin	Lesser Goldfinch	Red-winged Blackbird
Tree Swallow	Lawrence's Goldfinch	Bronzed Cowbird
Violet-green Swallow	American Goldfinch	Brown-headed Cowbird
N. Rough-winged Swallow	Lapland Longspur	Rusty Blackbird *!
Bank Swallow	Chestnut-collared Longspur	Brewer's Blackbird
Cliff Swallow	McCown's Longspur	Great-tailed Grackle
Cave Swallow	Green-tailed Towhee	Louisiana Waterthrush
Barn Swallow	Spotted Towhee	Northern Waterthrush
Verdin	Canyon Towhee	Black-and-white Warbler
Red-breasted Nuthatch	Abert's Towhee	Orange-crowned Warbler
White-breasted Nuthatch	Rufous-winged Sparrow	Lucy's Warbler
Rock Wren	Cassin's Sparrow	Nashville Warbler
House Wren	Chipping Sparrow	MacGillivray's Warbler
Marsh Wren	Clay-colored Sparrow	Common Yellowthroat
Bewick's Wren	Brewer's Sparrow	American Redstart
Cactus Wren	Vesper Sparrow	Northern Parula
Blue-gray Gnatcatcher	Lark Sparrow	Yellow Warbler
Black-tailed Gnatcatcher	Black-throated Sparrow	Black-throated Blue Warbler
Ruby-crowned Kinglet	Sagebrush Sparrow	Palm Warbler
Western Bluebird	Lark Bunting	Yellow-rumped Warbler
Mountain Bluebird	Savannah Sparrow	Yellow-throated Warbler
Swainson's Thrush	Grasshopper Sparrow	Black-throated Gray Warbler
Hermit Thrush	Song Sparrow	Townsend's Warbler
Rufous-backed Robin	Lincoln's Sparrow	Hermit Warbler
American Robin	Swamp Sparrow	Black-throated Green Warbler *
Curve-billed Thrasher	White-throated Sparrow	Wilson's Warbler
Bendire's Thrasher	Harris's Sparrow	Painted Redstart
LeConte's Thrasher	White-crowned Sparrow	Summer Tanager
Crissal Thrasher	Golden-crowned Sparrow	Western Tanager
Sage Thrasher	Dark-eyed Junco	Northern Cardinal
Northern Mockingbird	Yellow-breasted Chat	Pyrrhuloxia
European Starling	Yellow-headed Blackbird	Rose-breasted Grosbeak
Cedar Waxwing	Bobolink *	Black-headed Grosbeak
Phainopepla	Eastern Meadowlark (Lilian's)	Blue Grosbeak
House Sparrow	Western Meadowlark	Lazuli Bunting
American Pipit	Orchard Oriole	Indigo Bunting
Sprague's Pipit	Hooded Oriole	Dickcissel
House Finch	Bullock's Oriole	