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).

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).
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).
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 illinoinensis*), 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).

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, 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 (Jenness 2015a), a phenomenon currently under investigation (Jenness 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 (Jenness 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 acadius, 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).
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

<table>
<thead>
<tr>
<th>Species</th>
<th>Arrival</th>
<th>Year</th>
<th>Departure</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain Plover</td>
<td>6-Aug</td>
<td>1998</td>
<td>7-Apr</td>
<td>2017</td>
</tr>
<tr>
<td>Northern Harrier</td>
<td>30-Jul</td>
<td>2008</td>
<td>17-May</td>
<td>1994</td>
</tr>
<tr>
<td>Sharp-shinned Hawk</td>
<td>7-Oct</td>
<td>2017</td>
<td>22-Apr</td>
<td>2012</td>
</tr>
<tr>
<td>Swainson’s Hawk</td>
<td>24-Feb</td>
<td>2018</td>
<td>31-Oct</td>
<td>2008</td>
</tr>
<tr>
<td>Ferruginous Hawk</td>
<td>5-Sep</td>
<td>2018</td>
<td>28-Apr</td>
<td>2013</td>
</tr>
<tr>
<td>Lewis’s Woodpecker</td>
<td>28-Oct</td>
<td>2017</td>
<td>19-Apr</td>
<td>2018</td>
</tr>
<tr>
<td>Tropical Kingbird</td>
<td>5-May</td>
<td>2018</td>
<td>16-Sep</td>
<td>2017</td>
</tr>
<tr>
<td>Western Kingbird</td>
<td>17-Mar</td>
<td>2013</td>
<td>1-Dec</td>
<td>2013</td>
</tr>
<tr>
<td>Bell’s Vireo</td>
<td>6-Mar</td>
<td>2014</td>
<td>3-Oct</td>
<td>2012</td>
</tr>
<tr>
<td>Mountain Bluebird</td>
<td>29-Oct</td>
<td>2011</td>
<td>6-Mar</td>
<td>2019</td>
</tr>
<tr>
<td>Sage Thrasher</td>
<td>13-Oct</td>
<td>2005</td>
<td>2-Apr</td>
<td>2019</td>
</tr>
<tr>
<td>Yellow-breasted Chat</td>
<td>22-Apr</td>
<td>2014</td>
<td>31-Jul</td>
<td>2014</td>
</tr>
<tr>
<td>Lark Bunting</td>
<td>8-May</td>
<td>2006</td>
<td>9-Aug</td>
<td>2015</td>
</tr>
</tbody>
</table>

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 pugnas*), 2010; White-rumped Sandpiper (*Calidris fusicollis*), 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 spraguei*) 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 (*Pseucaea 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 rufopallidus*); Black-throated Blue Warbler (*Dendroica caerulescens*); Black-throated Green Warbler (*Dendroica virens*); Palm Warbler (*Dendroica palmarum*); Orchard Oriole (*Icterus spurius*); Cave Swallow (*Petrelidon 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 liliaceae*), 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).

**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 Lazaro 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 Neotropical 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.

### 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.

**LITERATURE CITED**


### APPENDIX A

#### 289 SPECIES REPORTED AT SANTA CRUZ FLATS
(as of 9 April 2019)

* Review species
! Report Currently Under ABC Review

<table>
<thead>
<tr>
<th>Snow Goose</th>
<th>Canvasback</th>
<th>Rock Pigeon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ross's Goose</td>
<td>Redhead</td>
<td>Eurasian Collared-Dove</td>
</tr>
<tr>
<td>Greater White-fronted Goose</td>
<td>Ring-necked Duck</td>
<td>Inca Dove</td>
</tr>
<tr>
<td>Canada Goose</td>
<td>Lesser Scaup</td>
<td>Common Ground-Dove</td>
</tr>
<tr>
<td>Tundra Swan</td>
<td>Bufflehead</td>
<td>Ruddy Ground-Dove</td>
</tr>
<tr>
<td>Wood Duck</td>
<td>Common Goldeneye</td>
<td>White-winged Dove</td>
</tr>
<tr>
<td>Blue-winged Teal</td>
<td>Hooded Merganser</td>
<td>Mourning Dove</td>
</tr>
<tr>
<td>Cinnamon Teal</td>
<td>Common Merganser</td>
<td>Yellow-billed Cuckoo</td>
</tr>
<tr>
<td>Northern Shoveler</td>
<td>Red-breasted Merganser</td>
<td>Greater Roadrunner</td>
</tr>
<tr>
<td>Gadwall</td>
<td>Ruddy Duck</td>
<td>Lesser Nighthawk</td>
</tr>
<tr>
<td>American Wigeon</td>
<td>Gambel's Quail</td>
<td>Common Poorwill</td>
</tr>
<tr>
<td>Eurasian Wigeon</td>
<td>Pied-billed Grebe</td>
<td>Vaux's Swift</td>
</tr>
<tr>
<td>Mallard</td>
<td>Horned Grebe</td>
<td>White-throated Swift</td>
</tr>
<tr>
<td>--Mexican Mallard</td>
<td>Eared Grebe</td>
<td>Black-chinned Hummingbird</td>
</tr>
<tr>
<td>Northern Pintail</td>
<td>Western Grebe</td>
<td>Anna's Hummingbird</td>
</tr>
<tr>
<td>Green-winged Teal</td>
<td>Clark’s Grebe</td>
<td>Costa’s Hummingbird</td>
</tr>
</tbody>
</table>
Broad-tailed Hummingbird
Rufous Hummingbird
Broad-billed Hummingbird
Sora
Common Gallinule
American Coot
Sandhill Crane
Black-necked Stilt
American Avocet
Black-bellied Plover
American Golden-Plover *
Pacific Golden-Plover *
Snowy Plover
Semipalmated Plover
Killdeer
Mountain Plover
Upland Sandpiper *
Whimbrel
Long-billed Curlew
Marbled Godwit
Ruddy Turnstone *
Ruff *
Stilt Sandpiper
Sanderling
Dunlin
Baird’s Sandpiper
Least Sandpiper
White-rumped Sandpiper *
Pectoral Sandpiper
Semipalmated Sandpiper
Western Sandpiper
Short-billed Dowitcher
Long-billed Dowitcher
Wilson’s Snipe
Spotted Sandpiper
Solitary Sandpiper
Lesser Yellowlegs
Willet
Greater Yellowlegs
Wilson’s Phalarope
Red-necked Phalarope
Bonaparte’s Gull
Heermann’s Gull
Ring-billed Gull
California Gull
Black Tern
Forster’s Tern
Common Loon
Wedge-rumped Storm-Petrel *
Neotropical Cormorant
Double-crested Cormorant
American White Pelican
Brown Pelican
Great Blue Heron
Great Egret
Snowy Egret
Cattle Egret
Green Heron
Black-crowned Night-Heron
White-faced Ibis
Roseate Spoonbill
Black Vulture
Turkey Vulture
Osprey
White-tailed Kite
Golden Eagle
Northern Harrier
Sharp-shinned Hawk
Cooper’s Hawk
Bald Eagle
Harris’s Hawk
White-tailed Hawk *
Gray Hawk
Swainson’s Hawk
Zone-tailed Hawk
Red-tailed Hawk
  --Harlan’s Hawk
  Rough-legged Hawk
Ferruginous Hawk
Barn Owl
Western Screech-Owl
Great Horned Owl
Burrowing Owl
Spotted Owl
Northern Saw-whet Owl
Belted Kingfisher
Lewis’s Woodpecker
Acorn Woodpecker
Gila Woodpecker
Yellow-bellied Sapsucker
Red-naped Sapsucker
Ladder-backed Woodpecker
Northern Flicker
Gilded Flicker
Crested Caracara
American Kestrel
Merlin
Peregrine Falcon
Prairie Falcon
Dusky Falcon
Ash-throated Flycatcher
Brown-crested Flycatcher
Tropical Kingbird
Cassin’s Kingbird
Thick-billed Kingbird
Western Kingbird
Olive-sided Flycatcher
Western Wood-Pewee
Willow Flycatcher
Hammond’s Flycatcher
Gray Flycatcher
Dusky Flycatcher
Pacific-slope Flycatcher
Black Phoebe
Eastern Phoebe
Say’s Phoebe
Vermilion Flycatcher
Loggerhead Shrike
Bell’s Vireo
Hutton’s Vireo
Cassin’s Vireo
Plumbeous Vireo
Warbling Vireo
American Crow
Chihuahuan Raven
Common Raven
Horned Lark  
Purple Martin  
Tree Swallow  
Violet-green Swallow  
N. Rough-winged Swallow  
Bank Swallow  
Cliff Swallow  
Cave Swallow  
Barn Swallow  
Verdin  
Red-breasted Nuthatch  
White-breasted Nuthatch  
Rock Wren  
House Wren  
Marsh Wren  
Bewick’s Wren  
Cactus Wren  
Blue-gray Gnatcatcher  
Black-tailed Gnatcatcher  
Ruby-crowned Kinglet  
Western Bluebird  
Mountain Bluebird  
Swainson’s Thrush  
Hermit Thrush  
Rufous-backed Robin  
American Robin  
Curve-billed Thrasher  
Bendire’s Thrasher  
LeConte’s Thrasher  
Crissal Thrasher  
Sage Thrasher  
Northern Mockingbird  
European Starling  
Cedar Waxwing  
Phainopepla  
House Sparrow  
American Pipit  
Sprague’s Pipit  
House Finch  
Pine Siskin  
Lesser Goldfinch  
Lawrence’s Goldfinch  
American Goldfinch  
Lapland Longspur  
Chestnut-collared Longspur  
McCown’s Longspur  
Green-tailed Towhee  
Spotted Towhee  
Canyon Towhee  
Abert’s Towhee  
Rufous-winged Sparrow  
Cassin’s Sparrow  
Chipping Sparrow  
Clay-colored Sparrow  
Brewer’s Sparrow  
Vesper Sparrow  
Lark Sparrow  
Black-throated Sparrow  
Sagebrush Sparrow  
Lark Bunting  
Savannah Sparrow  
Grasshopper Sparrow  
Song Sparrow  
Lincoln’s Sparrow  
Swamp Sparrow  
White-throated Sparrow  
Harris’s Sparrow  
White-crowned Sparrow  
Golden-crowned Sparrow  
Dark-eyed Junco  
Yellow-breasted Chat  
Yellow-headed Blackbird  
Bobolink *  
Eastern Meadowlark (Lilian’s)  
Western Meadowlark  
Orchard Oriole  
Hooded Oriole  
Bullock’s Oriole  
Scott’s Oriole  
Red-winged Blackbird  
Bronzed Cowbird  
Brown-headed Cowbird  
Rusty Blackbird *!  
Brewer’s Blackbird  
Great-tailed Grackle  
Louisiana Waterthrush  
Northern Waterthrush  
Black-and-white Warbler  
Orange-crowned Warbler  
Lucy’s Warbler  
Nashville Warbler  
MacGillivray’s Warbler  
Common Yellowthroat  
American Redstart  
Northern Parula  
Yellow Warbler  
Black-throated Blue Warbler  
Palm Warbler  
Yellow-rumped Warbler  
Yellow-throated Warbler  
Black-throated Gray Warbler  
Townsend’s Warbler  
Hermit Warbler  
Black-throated Green Warbler *  
Wilson’s Warbler  
Painted Redstart  
Summer Tanager  
Western Tanager  
Northern Cardinal  
Pyrrhuloxia  
Rose-breasted Grosbeak  
Black-headed Grosbeak  
Blue Grosbeak  
Lazuli Bunting  
Indigo Bunting  
Dickcissel