Notes on the Birds of Central Oaxaca, Part II: Columbidae to Vireonidae

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S u m m a r y
New data are presented amplifying or clarifying the status and distribution of 70 species of birds found in central Oaxaca primarily in portions of the Districts of Centro, Etla, Ixtlan, Tlacolula, and Zaachila within 35 km of Oaxaca City. Summaries are based on observations made on 738 days during the period from Dec 1996 to Mar 2002. Principal habitats found in the area are pine-oak (including limited areas of pine-oak-fir and limited extensions of bunch grass mixed with pine-oak), oak scrub, arid subtropical scrub, riparian areas, and areas more or less modified for agricultural or other human use (including gardens and parks). The following species are newly reported from the area as vagrants or rare transient migrants: Plain-capped Starthroat (*Heliomaster constantii*), Sparkling-tailed Hummingbird (*Tilmatura dupontii*), Yellow-bellied Flycatcher (*Empidonax flaviventris*), Acadian Flycatcher (*Empidonax virescens*), Great Crested Flycatcher (*Myiarchus crinitus*), Sulphur-bellied Flycatcher (*Myiodynastes luteiventris*), Philadelphia Vireo (*Vireo philadelphicus*), Red-eyed Vireo (*Vireo olivaceus*), and Yellow-green Vireo (*Vireo flavoviridis*). Also, the following ten species have previously been reported either only on Christmas Bird Counts or as single records: Buff-collared Nightjar (*Caprimulgus ridgwayi*) (presumed resident), Great Swallow-tailed Swift (*Panyptila sanctihieronymi*) (local resident), Azure-crowned Hummingbird (*Amazilia cyanocephala*) (local resident), Green-fronted Hummingbird (*Amazilia viridifrons*), Garnet-throated Hummingbird (*Lamprolaima rhami*), Russet-crowned Motmot (*Momotus mexicanus*) (presumed resident Sierra Juárez), Eastern Phoebe (*Sayornis phoebe*), Social Flycatcher (*Myiozetetes similis*) (resident), Gray-collared Becard (*Pachyramphus major*) (resident), and White-eyed Vireo (*Vireo griseus*). Breeding data are reported for 25 species, 18 without previous breeding records here. Twenty-four of these species can be grouped together as breeding Apr to Jul. Seventeen breed in riparian areas, six of these almost exclusively so.
Key Words: Oaxaca birds.

R e s u m e n
Notas sobre las aves de Oaxaca central, parte II: Columbidae a Vireonidae
Se reportan nuevos datos que amplían y clarifican nuestro conocimiento del estatus y distribución de 70 especies de aves en la región central del Estado de Oaxaca. Las observaciones se realizaron abarcando partes de los distritos de Etla, Ixtlan, Tlacolula, y Zaachila, dentro de un círculo de radio de 35 km alrededor de la Ciudad de Oaxaca. El reporte se basa en observaciones tomadas durante 738 días, comprendidos entre diciembre 1996 y marzo 2002. Los hábitats principalmente visitados fueron pino-encino (incluyendo zonas pequeñas de pino-encino-oyamel y pino-encino mezclado con pastizales), matorral de encino, matorral subtropical, vegetación riparia, y vegetación secundaria, campos agrícolas y otros (incluyendo áreas urbanas, como jardines y parques). Las siguientes especies se reportan por primera vez en la zona: *Heliomaster constantii*, *Tilmatura dupontii*, *Empidonax flaviventris*, *Empidonax virescens*, *Myiarchus crinitus*, *Myiodynastes luteiventris*, *Vireo philadelphicus*, *Vireo olivaceus* y *Vireo flavoviridis*. Además, las siguientes diez especies se han reportado anteriormente una sola vez o solamente en los Conteos Navideños: *Caprimulgus ridgwayi* (residente), *Panyptila sanctihieronymi* (residente local), *Amazilia cyanocephala* (residente local), *Amazilia viridifrons*, *Lamprolaima rhami*, *Momotus mexicanus* (residente en la Sierra Juárez), *Sayornis phoebe*, *Myiozetetes similis* (residente), *Pachyramphus major* (residente) y *Vireo griseus*. Se reportan datos de la reproducción de 25 especies, 18 de las cuales no se habían registrado como reproduciéndose en la zona antes. De estos, 24 se pueden agrupar como reproduciéndose en los meses de abril a julio, y 17 se reproducen en zonas riparias, seis de ellos casi exclusivamente.
Palabras clave: Aves de Oaxaca Central.

R è s u m è
Espèces d'oiseaux dans la región centrale de l'état d'Oaxaca, Partie II: Columbidae-Vireonidae
Cet article confirme de nouvelles données qui amplifient et clarifient notre connaissance du statut et de la distribution de 70 espèces d'oiseaux dans la region centrale de l'état d'Oaxaca. Les observations ont été réalizées sur le territoire des districts suivants: Etla, Ixtlán, Tlacolula et Zaachila, compris dans un cercle de 35 km du rayon autour de la ville d'Oaxaca. Les observations accumulent un total de 738 jours de terrain, compris entre décembre 1996 et mars 2002. Les principaux habitats sont de forêts mixes de pins-chénes (incluant des zones restreintes de pins, chênes et arbres d'abbies et pins chênes avec parties ouvertes herbacées), buisson de chênes, buisson sub-tropical, végétation riparienne et végétation segondaire, zones agricoles, y autres (incluant zones urbaines, jardins et parcs).Les espèces suivantes sont observées pour la première fois dans la zone considérée: *Heliomaster constantii, Tilmatura dupontii, Empidonax flaviventris, Empidonax virescens,*

Myiarchus crinitus, Myiodynastes luteiventris, Vireo philadelphicus, Vireo olivaceus et *Vireo flavoviridis*. De plus, les suivantes espèces furent antérieurement observées une seule fois ou seulement durant les comptages de fin d'année: *Caprimulgus ridgwayi* (résident), *Panyptila sanctihieronymi* (résident local), *Amazilia cyanocephala* (résident local), *Amazilia viridifrons, Lamprolaima rhami, Momotus mexicanus* (résident pour la Sierra Juárez), *Sayornis phoebe, Myiozetetes similis* (résident), *Pachyramphus major* (résident) et *Vireo griseus*. Il se reporte aussi données sur la reproduction pour 25 espèces d'oiseaux, dont 18 qui n'étaient pas connues comme reproductrice dans cette partie d'OAxaca. De celles ci, 24 peuvent être rassemblées comme reproducteur entre les mois de Avril et juillet, 17 en zone riparienne, 6 de celles ci presque exclusives.
Mots clés: Oiseaux d'Oaxaca central.

HUITZIL (2002) 3: 14-27

This is the second of three articles that cover the complete list of species over which I report. The reader is referred to the first article (Forcey 2002) for Introduction and Methods. In this second part the period is extended to cover 738 days in the period Dec 1996 to Mar 2002, and there are a few cases in which I have shortened my format where the only new data are a new date or dates compared to Binford's (1989) records.

Results

COLUMBIDAE

Zenaida asiatica White-winged Dove. [304] To 2000 m. Widespread in low elevation habitats.

Binford (1989) reported it as resident, but Howell and Webb's (1995) map shows it as wintering only. It is resident year-round, with some indications of increased population in winter, when flocks to about 50 birds are sometimes seen.

Rowley (1984) reported active nests on May 2, Jun 28. I have seen nest construction Mar 28 to May 15. Rowley's (1984) nests were both about 2.4 m high in a small tree and a cactus. All nests I have seen have been in non-native *Eucalyptus* (Myrtaceae) (3), *Populus* (Salicaceae) (2), and *Tamarix* (Tamaricaceae) (2) trees at heights from six to 14 m in modified riparian habitat along San Felipe Creek or in park-like areas where these tree species are common.

Leptotila verreauxi White-tipped Dove. [82] To 2300 m. Mostly found in thicker vegetation of arroyo sides or riparian areas in what is generally arid subtropical scrub or oak scrub. Three records in thickets in more open, heavily modified arid subtropical scrub.

Not reported by Binford (1989). Howell and Webb (1995) report it common to fairly common, to 2000 m. Recorded every month but Jan. Though it certainly breeds in the area, I have no observations of such. Paired birds Apr 27 and Jul 12.

CUCULIDAE

Coccyzus erythropthalmus Black-billed Cuckoo. [4] To 1850 m. Apr 14 to May 16. Three records from low elevation riparian areas, one record in heavily modified (planted pines) arid subtropical scrub.

Binford (1989) reported one previous record in our area, Sep 17. Howell and Webb (1995) reported the species as an uncommon to fairly common transient migrant, Aug to Nov, Apr to early Jun. My data support their dates, but very uncommon to rare.

Crotophaga sulcirostris Groove-billed Ani. [153] To 1740 m. Usually found in mixtures of scrub and agricultural lands around valley towns.

Binford (1989) reported one breeding record from the area, a prejuvenile Jun 24. Rowley (1984) indicated it is a common breeder, incubating females noted through Jul. Records of pairs seen carrying plant material, presumably nesting, beginning Apr 30. Dependent (begging) immatures recorded to Aug 27.

TYTONIDAE

Tyto alba Barn Owl. [4] To 1640 m. Seen flying over agricultural areas, urban areas, and roosting in caves in cliffs. Reported on Christmas Bird Counts in downtown Oaxaca City.

Binford (1989) was uncertain of its presence here, reported a single record from 1859. Howell and Webb (1995) report it as a fairly common to common resident, an assessment which this data confirm. Christmas Bird Count observations have included nestlings seen in downtown church buildings.

STRIGIDAE

Bubo virginianus Great Horned Owl. [5] To 1800 m. In arid subtropical scrub or this mixed with agricultural lands; two sites included small caves in cliffs. Also, heard calling at 2700 m near San Juan Tepantzacoalco in the Sierra Juárez in humid pine-oak forest.

Binford (1989) regarded it as rare, mentions one dubious record from 1859. Howell and Webb (1995) reported it fairly common to uncommon, to 3000 m, an assessment which my data confirm. At Yagul, two birds were heard dueting before dawn on Nov 10. A bird seen near the Monte Albán archaeological site clearly showed the gray tones and fine barring below of *B. v. pallescens*.

CAPRIMULGIDAE

Chordeiles acutipennis Lesser Nighthawk. [38] To 2200 m. Aug 22 to May 30. Widespread at lower elevations.

Binford (1989) thought it possibly only a transient migrant as all interior records were from spring. Howell and Webb (1995) map it as a winter resident, common to fairly common, Aug to early May, which my data confirm.

Both Howell and Webb (1995) and Binford (1989) report the species from open areas, do not mention use of scrub habitats. I repeatedly saw up to 50 of these birds enter the valley area at dusk from higher elevations of arid subtropical scrub and oak scrub of the lower slopes of the mountains. Apparently some make use of fairly closed scrub forest for roosting by day, fly to lower, more open areas at dusk to forage.

Caprimulgus ridgwayi Buff-collared Nightjar. 1750 m. Vocalizations heard Mar 3 and 6. In arid subtropical scrub mixed with fallow agricultural lands.

Edwards (1985) reported the species from Monte Albán, but this was doubted by Binford (1989). Mapped absent our area in Howell and Webb (1995). M. Malone (pers. com.) informed me of the presence of this species in the scrub areas above Teotilan del Valle. On Mar 6 E. Hunn accompanied me to the site and was able to record the bird's song. Status uncertain, presumably a breeding resident.

APODIDAE

Cypseloides niger Black Swift. [74] To 2250 m. Mar 25 to Oct 29, uncertain sightings from Feb 15. Widespread over valley areas and lower slopes.

Binford (1989) reported the species as rare, known May 27 to Aug 12. Howell and Webb (1995) report it as fairly common to common but local, most or possibly all withdrawing from north of Isthmus Oct to Feb. My data confirm this assessment. Flocks usually small, typically ten to 25 birds, once about 100. However, flocks were often widespread, and quite possibly more numerous than recorded. Often accompanied by other aerial insectivores, principally *Streptoprocne rutila* and/or *Tachycineta thalassina*.

Streptoprocne rutila Chestnut-collared Swift. [39] To 3050 m. Feb 16 to Oct 14. Widespread over all habitats.

Binford (1989) reports only two records from our area, both in Aug, but his dates for state as a whole are close to mine. Howell and Webb (1995) report it as a common to fairly common resident, present interior Oaxaca in winter, but also withdrawing locally from higher and colder interior areas Oct to Feb, which my data confirm. M. Grosselet (pers. com.) has found the species near Ixtlan de Juárez, just north of our area, in Dec.

Chaetura vauxi Vaux's Swift. [14] To 2250 m. Sep 22 to Nov 14, Apr 20, Jul 31. Seen mostly over lower elevation scrub habitats.

Unreported by Binford (1989) in our area, but rare in interior south of our area, Apr and Sep. Howell and Webb (1995) report it as a common to fairly common resident in all of Oaxaca. The only summer record was of a single bird flying with three *Aeronautes saxatalis*. The species appears to be primarily a fall transient migrant, wandering into the area occasionally in spring and summer.

Aeronautes saxatalis White-throated Swift. [12] To 3000 m. Oct 4 to Mar 26, Jul 28, 31. Seen over all habitats.

Binford (1989) reported it May 9 to Jun 27 in central Oaxaca. Howell and Webb (1995) report it as an uncommon to fairly common permanent resident, more common Nov to Feb, to 2500 m. Taking Binford's (1989) data with mine, the species appears to be present throughout the year, with gaps in the record Apr, Aug and Sep. Generally this picture agrees with that of Howell and Webb's (1995) assessment, but less common than they indicate and occurring to somewhat higher elevations.

Panyptila sanctihieronymi Great Swallow-tailed Swift. [31] To 2500 m. All records from two locations on or near the Cerro San Felipe.

One previous record (Howell 1999). Recorded in every month but Jan and Mar. Observations mostly of one or two individuals, seven seen on one occasion. Often in company with other species of swifts or swallows. Presumably a breeding resident.

TROCHILIDAE

Amazilia cyanocephala Azure-crowned Hummingbird. [20] To 1780 m. One record, May 8, below the Monte Albán ruins in disturbed arid subtropical scrub. All other observations from the vicinity of the Matias Romero Dam near San Pablo Huitzo in disturbed scrub habitat.

Reported during the 2000 Christmas Bird Count, location unknown. Has been seen at the Huitzo site in every month but Oct, up to seven individuals per visit. Most birds have been seen feeding in *Nicotiana* (Solanaceae).

Identity has presented some confusion. I originally identified birds from San Pablo Huitzo as *A. violiceps*, while others have reported birds from the same area as *A. viridifrons*. I have noted the following points: the crown of adult male birds is blue, not violet. The bill is variably dark above, red below. A variable white postocular spot is present on most individuals. I believe that the first two points must be conclusive.

Amazilia beryllina Berylline Hummingbird. [278] To 2400 m. Mostly in various scrub habitats, disturbed areas, and gardens at lower elevations. Reaches oak scrub of the lower mountain slopes, but sightings above 2000 m are not common, and I have only three in pine-oak habitat.

Binford (1989) reported the species as common resident, breeding in pine-oak forests from 1372 to 3049 m, wintering 2134 m and lower. However, the highest location at which he records the species breeding is 1829 m. Howell and Webb (1995) report it to 2000 m, in "woodland and edge, scrub, especially with oaks, clearings, plantations." Also, Binford (1989) reports it as unrecorded in the Sierra Juárez. I have recorded the species on four occasions in the Sierra Juárez.

Rowley (1984) reported nesting from Sep 5 to Oct 8. My records show nesting from Jun 6 to Oct 20, corresponding to the most dependable rainy season in valley areas.

Amazilia viridifrons Green-fronted Hummingbird. [7] To 1700 m. Aug 4 to Jan 13. Two locations about six km apart in eastern end of our area. Both are disturbed scrub areas with flowering trees or bushes.

Howell (1999) lists it at Teotitlán near PAD. Irregular transient in our area.

Lamprolaima rhami Garnet-throated Hummingbird. [2] From 1700 m. Single bird on Sep 26, 2000 in an area of altered riparian vegetation in arid subtropical scrub, 1700 m. Single bird Oct 20, 2001 in humid pine-oak arroyo, 2200 m.

The species is reported irregularly on Christmas Bird Counts from the La Cumbre area, presumably above 2500 m. The Sep 2000 sighting is the first record from lower elevations in the central valleys, where it is a rare vagrant or accidental**.**

Heliomaster constantii Plain-capped Starthroat. One record, Jun 7, 2001 in brush of vacant lot Oaxaca City, 1540 m. One uncertain record May 2, 2001 at the Tequio Park, 1500 m.

Unreported previously. Vagrant.

Tilmatura dupontii Sparkling-tailed Hummingbird. A single female of this species was seen at Monte Albán, 1850 m, on Jul 2 and 3, 2000 in disturbed arid subtropical scrub during a heavy bloom of flowers that also attracted numerous *Amazilia beryllina* to the area.

Unreported previously. Vagrant.

Calothorax pulcher Beautiful Hummingbird. [33] To 2000 m, one record 3100 m. Mostly in arid subtropical scrub or disturbed areas of same, also urban areas.

Previously reported to about 2200 m (Binford 1989, Howell and Webb 1995). On May 11, 2001 a single bird was seen in cleared pine-fir forest some 900 m higher than the species has previously been recorded.

Archilochus colubris Ruby-throated Hummingbird. [124] To 2750 m, mostly to about 2300 m. Aug 23 to Apr 21. Disturbed areas from valley scrub habitats to pine-oak forests.

Binford (1989) and Howell and Webb (1995) report the species from Sep to Apr. Probably arrives in Aug most years, as I have recorded it in that month in two years and Sep 4 and 8 in two others.

The pattern of seasonal occurrence of this species deserves some comment. Most (85%) of my sightings of this species are in the months of Sep to Dec. The month of Oct is the peak of occurrence with 36% of sightings and 56% of individuals counted. Average number of individuals per observation is close to four in Oct, close to two in Sep, Nov, and Dec, one or slightly more in other months. The species is always rare in the area after Jan, recorded in Mar in two years, one year in Apr. Thus, the species is primarily a fall migrant. This is similar to the findings of Hunn et al. (2001) in the southern interior slope of central Oaxaca.

Selasphorus rufus Rufous Hummingbird. [24] To 2150 m. Sep 21 to Jan 9. All of my records are from lower elevations in areas of disturbed arid subtropical scrub up to mixtures of arid subtropical scrub with oak scrub.

This species shows a pattern of occurrence similar to *A. colubris*. 87.5% of my observations have been in the months of Oct to Dec. It should be noted that one to 11 birds have been recorded on each of the Oaxaca Christmas Bird Counts, held at the end of Dec or beginning of Jan. Though this does not necessarily contradict my data, it does indicate a consistent presence of this species into the beginning of each year. This is similar to the pattern of occurrence reported by Hunn et al. (2001) in the interior slope of the southern mountains of central Oaxaca, and would seem to be in accord with the seasonal movement reported by Howell and Webb (1995) for this species.

TROGONIDAE

Trogon elegans Elegant Trogon. [30] 1750 to 2250 m. Mar 11 to Sep 30. Mostly in arroyos of the lower slopes to the north of Oaxaca City. These are riparian areas in what is otherwise arid subtropical scrub or oak scrub, but extending into the lower portions of pine-oak forests in at least two of the areas. Also recorded twice in an arroyo below Monte Albán, a drier area that does not have water during most of the year.

Both Binford (1989) and Howell and Webb (1995) report this species as resident in our area. It has not been reported on any Oaxaca Christmas Bird Counts held since 1996. This lack of winter observations suggests that the species may be at least partially migratory here. The species is known to be partially migratory in its northern populations (Kunzmann et al. 1998).

MOMOTIDAE

Momotus mexicanus Russet-crowned Motmot. One bird Feb 13, 2001 along the Rio Grande of San Juan Atepec, north of our area. In poorly developed riparian vegetation in an area of arid tropical scrub.

Howell and Webb (1995) map it absent the interior of Oaxaca. Binford (1989) reported it occurring in the valley of San Juan Bautista Cuicatlan. The San Juan Atepec location is contiguous with the area mentioned by Binford (1989), but about 60 km southeast of the Cuicatlan location.

ALCEDINIDAE

Ceryle alcyon Belted Kingfisher. [83] To 1740 m. Aug 20 to May 4. At area ponds and dams.

Unreported by Binford (1989). Howell and Webb (1995) report it as a common to fairly common transient and winter visitor, Aug to Apr, an assessment confirmed by my data. In four of five springs, the latest date was in Mar.

Chloroceryle americana Green Kingfisher. [94] To 1740 m. At dams and watercourses, most of the latter being slow moving valley rivers and streams. From Mar 20 to Apr 27, 2001, a pair were seen in the riparian area just above the

San Felipe Park, a location and habitat not otherwise known to be utilized by this species. Presumably the pair moved into this area as a response to drying conditions elsewhere during the spring drought.

Binford (1989) reported one 1892 record from our area. Howell and Webb (1995) report it as a common to fairly common resident, an assessment confirmed by my data. Nesting has not been observed, but paired birds are common throughout the year.

PICIDAE

Picoides scalaris Ladder-backed Woodpecker. [54] To 2150 m. Scrub habitats of lower slopes.

No previous breeding records in state. On Mar 20, 2001 a pair were seen copulating in the riparian area above the San Felipe Park. From Mar 3 to Apr 24, 2000 a pair were observed excavating a cavity and nesting in a dead maguey stem in heavily altered arid subtropical scrub near Teotitlán del Valle. On May 19, 2000 a female was seen in oak scrub above the San Felipe Ecological Park attending a fledgling of undetermined sex.

TYRANNIDAE

Camptostoma imberbe Northern Beardless-Tyrannulet. [85] To 1950 m. Agricultural scrub of valleys to riparian areas in oak scrub of lower mountain slopes, also parks, town gardens.

No previous breeding records here, but Binford (1989) reported nesting May 9, Jun 3 elsewhere in state, and Schaldach et al. (1997) reported biological evidence of breeding Apr 4, Jun 6 elsewhere in state. Earliest recorded singing Mar 20, frequently heard Apr and May, few records Jun to Aug. Intraspecific agonistic behavior, involving chases and mid-air grappling, seen on Apr 9. On May 5 one was seen aggressively chasing a *Spizella passerina*. Two nesting observations: May 2 one seen entering a nest located in a small clump of *Tillandsia* (Bromeliaceae). Jul 28 one seen constructing a nest in a clump of *Tillandsia* (Bromeliaceae) about 3 m up in a *Pithecellobium* (Fabaceae) tree. Nest appeared to be substantially complete Aug 11, adult seen incubating on Aug 19. Adult later seen feeding immature in the vicinity of this nest on Sep 21. At another location an adult bird was seen feeding a fledgling on May 31. Dates for singing are in agreement with known dates for the species elsewhere in its range (Tenney 2000). Late nesting is known from other parts of species' range (Tenney 2000), and the late nesting recorded above probably indicates a second brood.

Myiopagis viridicata Greenish Elaenia. [138] 1650 to 2300 m. Mostly in riparian areas in arid subtropical scrub and lower elevation pine-oak and oak scrub; a few from outside of riparian zones.

Unrecorded our area by Binford (1989). Howell and Webb (1995) appear to map it absent here, although Howell (1999) listed it for several locations in the area. Present year round, but appears to be partially migratory. In three years when I was present year round, 79% of observations were in the period from Apr through Sep. Also, numbers per observation increase during the breeding season: 43% of early breeding season (Apr through Jun) observation counts were of three to 15 birds, whereas 10% of non-breeding season observation counts were of three birds, none exceeding that number. Hunn et al. (2001) recorded it only May 13 to Jun 21 in the southern mountains, and it has been unrecorded on three of six Christmas Bird Counts in our area.

Previously unreported breeding here. Binford (1989) reported biological evidence of breeding on Apr 23, a prejuvenile Jul 16 elsewhere in state. Pairs commonly observed Apr 20 to Sep 9. From Apr 21 to Jun 8, I have recorded ten observations that probably indicate territorial activity. Most of these appeared to be intraspecific agonistic behaviors (two birds moving about together, chasing, often flicking and spreading wings, tail, also revealing white crown patch), although only once did I observe a fully developed, grappling fight. These agonistic behaviors at the beginning of the breeding season may be characteristic of birds claiming breeding territories (Skutch, in Stouffer and Chesser, 1998), and thus may be considered as indirect evidence of seasonal movements to breeding territories. On May 19 I saw birds of this species chase individuals of *Vireo griseus* and *Aimophila notosticta*. Adults have been seen feeding immatures Jul 6, Aug 3 and 16. Only one observation of nesting, a bird at an incomplete nest Jun 10.

Contopus pertinax Greater Pewee. [243] To 3200 m. Year round in higher elevation pine-oak forests, breeds also in lower elevation riparian areas, widespread in winter (Oct to Mar) at lower elevations, rare in these areas in summer.

Chace and Tweit (1999) state that migratory northern birds winter in Pacific slope lowlands from southern Sonora to Guatemala. They, Binford (1989), and Howell and Webb (1995) indicate the species is at least partially an altitudinal migrant. Thus, birds seen in winter at lower elevations in the Oaxaca valleys could be northern migrants, but more probably represent a partial down slope movement from higher breeding areas nearby.

No previous breeding records here. Almost all of my observations of breeding are from lower elevation riparian areas; no doubt breeds at higher elevations also. Paired birds recorded from Mar 20. Earliest record of nesting is Apr 4 when a single bird was seen working on an almost complete nest. Twelve other observations of birds at or on nests until May 15. Fledglings attended by adult birds from May 18 to Jul 22. Three violent intraspecific agonistic encounters Apr 4 to 21, suggesting that territories are not maintained in these riparian breeding areas throughout the year. Two interspecific agonistic encounters (involving *Aphelocoma californica* and *Cyanocitta stelleri* respectively) were recorded Apr 25 and May 11. After Jul fewer birds are seen in the riparian areas, and I assume that most do in fact vacate the lower elevation breeding grounds after the breeding season. Pair formation here is slightly later than that recorded in El Salvador, and early nesting dates are more than a month

earlier than those known from the northern breeding areas of this species (Chace and Tweit 1999).

Recorded in breeding season in riparian areas down to 1700 m. in lands of San Felipe del Agua, San Agustin Etla, Santa Cruz Etla, and Teotitlán del Valle. Surrounding vegetation types outside of these riparian zones are arid subtropical scrub and oak scrub. North of our area, along the Rio Grande in lands of San Juan Atepec, I have also recorded the species in late May, and thus probably breeding, in poorly developed riparian vegetation surrounded by arid tropical scrub. Chace and Tweit (1999) state that the species uses riparian areas as winter habitat in some parts of Mexico. In our area riparian areas are used year-round, with more birds present in the breeding season. In the northern part of its range, the species breeds in riparian areas "but not where adjacent vegetation was…scrub growth" (Chace and Tweit 1999). This also differs from the situation found here.

Contopus sordidulus Western Wood-Pewee. [238] To 2750 m, all observations but one below 2250 m. Mar 21 to Nov 10, only twice in Nov, typically to about Oct 20. Binford (1989) doubted records before Apr 18. I have recorded it the last ten days of Mar in five of six years. Most common breeding habitat is in riparian zones of lower slopes, 1700 to 2250 m, also found nesting in dry arroyos that do not support a well developed riparian vegetation, parks, also pine plantings at Monte Albán. In migration more widespread, found at higher and lower elevations and in more varied habitats.

No previous breeding records here. Binford (1989) reported nest construction May 9 slightly east of our area. I have recorded paired birds beginning Apr 11. I have a record of a bird "at" a nest on Apr 14, possibly investigating a previous year's nest. Earliest definite nest building was Apr 21; latest nest construction Jun 6, this nest later abandoned. Many other records of building or attending nests from late Apr to Jun 11. Adults with fledglings recorded Jun 16 to Jul 22. Intraspecific agonistic behavior recorded four times from Apr 10 to 28. Interspecific agonistic encounters as follows: Apr 25 *Vireo gilvus*, May 5 *Tyrannus vociferans* and *Molothrus aeneus*, May 6 *Xenotriccus mexicanus*, May 8 *Pyrocephalus rubinus*. The May 5 encounters were interesting as both flycatcher species had begun nesting in the same small tree. Both chased *Molothrus aeneus* immediately as these approached the nests, but the pewee ignored two *Carpodacus mexicanus* that perched in the tree. Sometimes both Tyrannids together attacked the cowbirds at either nest. At other times they chased each other. I found both nests abandoned when I visited the location again a few days later.

These data are generally in close agreement with the life history presented for the species by Bemis and Rising (1999). They comment on its use of riparian areas for nesting and note "highest densities in riparian zones of arid habitats", which is what these birds find in central Oaxaca on arrival in Mar in most years. The species begins nesting slightly earlier in southern Mexico than in the southern part of its range in the United States. Howell and Webb (1995) report summer resident birds present Apr to Sep. However, birds seem to vacate the riparian breeding grounds immediately after raising a single brood, with numbers seen per visit to the San Felipe Park dropping from an average of around seven to one or none after Jul 31. This, supported by the observations of Hunn et al. (2001) who recorded it Apr 9 to Jul 31 in the southern mountains, leads me to believe that the birds begin to leave the area in Jul with most breeding birds gone shortly thereafter. Earliest records in Mar are usually in breeding areas, slightly later in areas where it has not been recorded nesting, suggesting that breeding birds arrive before transient birds pass through.

Empidonax flaviventris Yellow-bellied Flycatcher. [12] To 1850 m. Aug 31, May 13 to 30. Riparian woodlands, gardens.

Previously unreported here, but Binford (1989) reported one May 9 slightly east of our area. Ten observations were recorded May 15 to 30, 1998. These are the first records for the species in our area, and they provide new early and late dates for the species in Oaxaca. Vagrant.

Empidonax virescens Acadian Flycatcher. I recorded the same bird twice, May 27 and Jun 1, 1998, in the riparian area of the San Felipe Park, 1850 m.

Previously unreported here. This is a new late date for the state. Rare vagrant.

Empidonax traillii Willow Flycatcher. [2] May 11, 1998, and May 11 and 16, 2000. To 1650 m. In open areas of disturbed scrub habitats near water.

Unreported by Binford (1998), but Howell and Webb (1995) map it as a winter resident southern half of state, apparently including our area. My data do not show it present here in winter.

Empidonax albigularis White-throated Flycatcher. [6] To 2700 m. May 9 to Aug 23. Brushy areas near water, both in arid subtropical scrub of valleys, and in openings in high elevation pine-oak forests.

Binford (1989) reported the species breeding to 1830 m in the state. May 25 and Jun 15 seen calling, and thus presumably on breeding territory, at the Yagul marshes, 1650 m. I saw a pair of these birds near the town of La Nevería, 2700 m, on May 9 calling vigorously, and I believe they were a breeding pair on territory. These are the first records of the species breeding at high elevation areas in Oaxaca.

Empidonax minimus Least Flycatcher. New date: from Jul 28.

Empidonax hammondii Hammond's Flycatcher. New dates: Sep 10 to May 7.

Empidonax wrightii Gray Flycatcher. New dates: Sep 9 to Apr 12.

Empidonax oberholseri Dusky Flycatcher. New dates: Aug 13 to May 18.

Empidonax affinis Pine Flycatcher. [16] 2900 to 3200 m, uncertain sightings from 2300 m. Breeds in high elevation, open pine-oak, pine-oak-fir forests.

One previous breeding record, a specimen taken in breeding condition May 5 (Binford 1989). I have two observations of breeding, a pair constructing nest May 11, an adult feeding a fledgling Jun 26.

Empidonax occidentalis Cordilleran Flycatcher. [72] 1750-3100 m. In humid pine-oak forests to the highest elevations, lower in riparian areas.

All of my observations of breeding activity have been from 1750 to 2500 m, which is in accord with Hunn et al.'s (2001) and Rowley's (1966) observations from the southern mountains, though Binford (1989) reported breeding to 2750 m in our area.

Rowley (1966) recorded nests from Apr to Jul in the southern mountains of Oaxaca. Binford (1989) reported specimens taken in breeding condition Apr 4 to Jul 19 in our area, one nesting observation Jul 19. I have several breeding observations from four years as follows: paired birds from May 3; adult at nest in fork of tree May 6; adult carrying nest material May 9. An adult was seen attending nest on rock ledge containing two eggs beginning Jun 8. On Jun 20, 28 this nest contained two nestlings, nest empty Jul 4. At another location, an adult with two fledglings was seen on Jul 8. What appeared to be an intraspecific agonistic encounter was seen on May 10; on Jun 9 an adult was seen attacking a *Catharus aurantiirostris* feeding directly below the flycatcher's nest.

In at least three locations, all in lower elevation riparian areas, I have observed that these birds moved into the area prior to breeding. The most marked of these was at about 1750 m elevation at the San Felipe arroyo in 2001. Not recorded Feb, but a single bird was recorded on seven occasions from Mar 15 to Apr 27, recorded giving male's *si-wee* calls on at least one visit. Beginning Jun 8, about 75 m downstream from these sightings, where the arroyo passes through a rocky defile, several observations of nesting were recorded until Jul 4, when a single adult bird was seen near the empty nest. The species was not observed thereafter. Thus, these birds move into breeding areas in shady arroyos beginning in Mar, establishing breeding territories, nesting somewhat later, Apr through Jun mostly. Nesting period is comparable to known nesting dates for this species elsewhere (Lowther 2000).

Howell and Webb (1995) state "most leave conifer zones in winter", and "Most move to foothills in winter". On the other hand, Binford (1989), Lowther (2000), and Hunn et al. (2001) concur in not reporting winter migrations for this species. My records show a scarcity of winter sightings, with Mar to Jul records making up 78% of total recorded observations. Only one observation in Aug, none in Sep. However, winter observations are from a variety of elevations and habitats, including four in Dec and Jan from 2500 to 3000 m. This species' preference for nesting in cool shady ravines, especially where cliffs allow placement of nests on ledges (Hunn et al. 2001, Rowley 1984, Lowther 2000) concentrates breeding populations in relatively reduced areas. The seasonal movement then may not be strictly altitudinal, but a movement to a specific type of breeding habitat in spring, and a dispersal into more general pine-oak habitat following breeding that would explain lower numbers observed, and that could include some down slope component. Notably, I have only one record from arid subtropical scrub habitat, indicating that if birds of this species do move in winter to lower elevations, they must move to outside of our area.

Empidonax fulvifrons Buff-breasted Flycatcher. [2] A single bird Jan 16 at San Felipe Park, 1750 m, in brushy arroyo located in heavily altered arid subtropical scrub; single bird Oct 27 at Latuvi, 2300 m, in opening in cleared pine-oak forest.

Binford (1989) reports one previous record, Feb 19 from the San Felipe area, as the only one in central Oaxaca, and Howell and Webb (1995) report it as rare here, which my data confirm.

Sayornis nigricans Black Phoebe. [250] To 1800 m. At area ponds, dams, streams, and rivers.

No previous breeding records here, but Binford (1989) reported nesting Apr 2, May 9 elsewhere in state. I have recorded nesting activity as follows: nest construction Apr 7 to May 17; nest with eggs or young Apr 12 to Jun 30. Adults with fledglings May 29 to Jul 7, but Manuel Grosselet (pers. com.) reported two immatures on Apr 13. Nesting sites are typical for the species, under bridges, culverts, regularly nests in a well near Teotitlán. Reuse of nest sites is common, reuse of previous nest recorded once. The Jun 30 nesting record was of a second brood in the same nest; I was unsure if first brood was successful or not. Mid-Apr immatures require that some nesting begins as early as early Mar. If so, then the nesting cycle would appear to be from Mar to Jul, much like that recorded elsewhere for the species (Wolf 1997).

Sayornis phoebe Eastern Phoebe. A single bird at Teotitlán, 1680 m, Jan 29 (R. Antonio pers. com.) to Feb 14, 2002. Small valley stream surrounded by disturbed scrub.

Reported previously only by Howell (1999), who listed it from Teotitlán without further data. Rare vagrant.

Sayornis saya Say's Phoebe. [45] To 2750 m, most to 1900 m. Sep 29 to Apr 12. Recorded in Apr in three of five springs. Most sightings are from short grass areas around dams and agricultural areas; habitat at highest location is extensive bunch grass meadows with some patches of bare ground near San Pablo Cuatro Venados.

Binford (1989) reported only two records from our area, both Oct 15. Howell and Webb (1995) reported it as common to fairly common, Oct to Mar. Irregular and uncommon at all known locations.

Pyrocephalus rubinus Vermilion Flycatcher. [522] To 1900 m. Abundant in scrub, agricultural, and urban habitats at lower elevations.

Binford (1989) reported one previous record of breeding here, nest with two eggs May 30. I have seen males' display flight almost throughout the year. Four Feb records of this behavior (earliest Feb 2), 35 in Mar through early Jun. Flights not recorded most of Jun through Sep, but seen Oct 6 and 7 in three years, once Nov 29. Paired birds beginning Mar 3. Earliest record of nest construction Apr 20, but a nearly complete nest was being constructed on Apr 21, and a female was seen investigating a possible nesting site on Mar 28. Other nest building was observed in early May, and what appeared to be a nest site acceptance display was seen at two different locations on May 10. Birds seen at several nests through Jun 9, with incubation observed in mid-May and nestlings in early Jun. Adults with fledglings Apr 28 to Jul 15, most after mid-Jun. Unattended juvenile birds from Jun 2 to Aug 16, but some immature birds keep company with adults longer, long after they are able to feed themselves, recorded thus to Sep 27. Adult pairs seem to associate loosely on breeding territories after breeding season, recorded thus to Jan 23. Only twice have I seen brief intraspecific agonistic encounters, both involving two males, Apr 28 and May 5. These data give a picture of the breeding season that seems to broadly agree with that known from other portions of the species' range (Wolf and Jones 2000), possibly beginning slightly later than in Arizona, as earliest egg laying here, inferred from Apr 28 fledglings, would be late Mar.

In trees that line the shallow water course below the small dam east of Teotitlán, three nests were found within a linear distance of about 75 m. The species is also a common breeder in the lower portion of the San Felipe riparian area, where it is seldom seen outside of breeding season. Also, paired birds and adults with fledglings have also been seen regularly on the slopes below the Monte Albán ruins in modified arid subtropical scrub with no water nearby. Nesting in both riparian and dry areas is also known from other parts of species' range (Wolf and Jones 2000).

Myiarchus crinitus Great Crested Flycatcher. One record, May 16, 1998 in *Tamarix* (Tamaricaceae) and *Eucalyptus* (Myrtaceae) grove at the San Andres dams, 1650 m.

Previously unreported here. This is a new late date for the species in the state. Vagrant or accidental.

Pitangus sulphuratus Great Kiskadee. [330] To 1750 m. Parks, riparian areas.

No previous breeding records here. Nest construction from Mar 13 to May 13; adults at apparently complete nests from Mar 28 to Jun 26; immature birds with yellow gape flanges from Jun 21 to Jul 11. Favorite nesting sites for this species are in non-native, tall *Eucalyptus* (Myrtaceae) trees (11 of 14 nests), also in *Tamarix* (Tamaricaceae) and *Pithecellobium* (Fabaceae) trees. Adult birds attacked a *Zenaida asiatica* that perched near their nest on May 15, a *Corvus corax* about 20 m from nest tree on Jun 26.

Myiozetetes similis Social Flycatcher. [159] To 1730 m. Most observations from parks, nurseries, riparian areas featuring plantings of tall, non-native trees.

Previously reported on Christmas Bird Counts only, no previous breeding records. Nest construction from Apr 2 to May 12, birds at apparently completed nests and carrying food to same from May 5 to Jun 13. Most nests seen have been in *Eucalyptus* (Myrtaceae) trees, one in *Pithecellobium* (Fabaceae).

Myiodynastes luteiventris Sulphur-bellied Flycatcher. [12] 1630 to 1750 m. Nine records May 14 to Jun 25, 1998; also Sep 26, 1998, May 4 and 7, 1999. Most observations from the riparian area at San Felipe Park and *Eucalyptus* (Myrtaceae) groves at the San Andres dams.

Previously unreported here. On Jun 10, 1998 a pair were seen in the San Felipe riparian area moving about together with short chases and repeated vocalizations, behavior which I thought might be either courtship or agonistic. Binford (1989) reports breeding elsewhere in state from May 15 to Jul 12. An irregular vagrant here, possibly a very rare, irregular breeder.

Tyrannus melancholicus Tropical Kingbird. [179] To 1720 m. Most common where tall trees are mixed with open country. Also, common in Oaxaca City in tall trees and on rooftops.

Binford (1989) reported only one record, thought it not resident here. Howell and Webb (1995) reported it common to fairly common, to 1800 m, which my data confirm.

No previous breeding records here. Early season intraspecific agonistic encounters recorded Mar 11 to Apr 5. A pair was seen attacking a *Myiozetetes similis* on Apr 2, but on Jun 13 a pair of kingbirds bringing food to a nest ignored a *M. similis* perched in the nest tree. Nest construction Apr 5; adults attending apparently complete nests from Apr 30 to Jun 13; adults with fledglings May 29 and Jun 21. These records indicate a nesting season somewhat earlier than that found in northern part of range as reported by Stouffer and Chesser (1998) but similar to what Rowley (1984) found elsewhere in Oaxaca.

On Apr 30 two *Molothrus aeneus* were seen waiting next to an active nest of this species, but I have not seen *Tyrannus melancholicus* feeding *M. aeneus* young. Recorded twice nesting in same area as nesting *T. vociferans*.

Tyrannus vociferans Cassin's Kingbird. [356] To 2750 m, most below 2000 m. In lower elevation arid subtropical scrub and this mixed with agricultural openings, up to

areas of fairly open oak scrub. The highest elevation record was in an area of extensive bunch grass mixed with open pine-oak forest near San Pablo Cuatro Venados. In extensively cleared pine-oak-fir forests elsewhere at high elevations, the species is not recorded.

No previous breeding records here. Nest construction Apr 30 to May 5, attending apparently complete nests Apr 14 to May 31, adults with fledglings Jun 12 to Jul 28. This species nests in close proximity to nesting *T. melancholicus*, probably in some locations (e.g. Monte Albán) also near nesting *T. crassirostris*. These observations are in general agreement with dates of breeding observations reported by Binford (1989) elsewhere in Oaxaca, also with those from other areas in the species' range reported by Tweit and Tweit (2000).

Tyrannus crassirostris Thick-billed Kingbird. [93] 1640 to 2150 m. Breeds lower elevation riparian areas, more widespread in winter.

Binford (1989) reported it as primarily a winter resident, one 1894 summer record. Erickson and Hamilton (1993) reported one observation in riparian vegetation in our area on Jun 29. Howell and Webb (1995) reported it as a fairly common to uncommon resident, to 2000 m. Recorded in all months.

No previous breeding records here. A pair of these birds has been seen in four consecutive years during the breeding season in the San Felipe riparian area, nests seen in three of those years. First spring records are Mar 12, 12, 15, Apr 4. Latest records vary from May 19 to Jul 22. The most complete observations of a nesting pair were obtained in 2001. Birds were first observed in the area on Mar 15. Three were seen together on Mar 27, displaying to one another with much vocalization, horizontal postures, head wagging, and tail and wing flicks. On Apr 20 and 21 a pair were seen constructing a nest about 12 m up in a *Eucalyptus* (Myrtaceae) tree. Pair continued to attend nest Apr and May. On Jun 8 the pair were seen with two almost fledged young at the nest. Adults were very vocal, flapping wings, perched about 1 m above young in the nest. The following day the young birds were out of the nest, seen to fly a short distance. Adults continued to demonstrate as the previous day. No birds seen on Jun 20 visit. Thus, from nest construction to fledging, observed time was a total of 51 days, suggesting a very long time for nest building. Observations of four other nests fit within the dates of the nesting described, except one under construction Apr 14. Family group of four observed from Aug 11 to 20 at Monte Albán. No feeding of juvenile birds seen during those dates, so the period of dependency seemed to have passed. This species was seen attacking a squirrel of unknown species on Apr 16, and a pair of *Picoides scalaris* on May 19.

Tyrannus verticalis Western Kingbird. [35] To 1900 m. Sep 29 to May 25. Mostly in areas of arid subtropical scrub mixed with open agricultural areas.

Binford (1989) reported it as an uncommon transient migrant in arid subtropical scrub, Oct 14 to May 14, while Howell and Webb (1995) report it as common to fairly common Aug to May, to 1800 m. In fall and winter I have recorded it from Sep 29 to Feb 20, only one year past Dec, with peak numbers in most years from Oct 13 to Nov 14. In spring recorded from Mar 30 to May 25. My data indicate that the species is only, or at least primarily, a transient migrant in our area, also extend known dates for the state.

Tyrannus tyrannus Eastern Kingbird. [7] To 1850 m. Sep 10; Apr 16 to May 16. Parks, tall trees in scrub habitats.

Unreported by Binford (1989). Howell and Webb (1995) report it as a common to fairly common transient migrant, late Aug to Oct, late Mar to May, to 2000 m. Their map seems to include our area. Schaldach et al. (1997) reported large (to 100 birds) migrating flocks in May in the northern lowlands. I have seen a maximum of five birds at one observation. These records indicate the species is a rare and irregular transient migrant here, provide new dates for it in the state.

Pachyramphus major Gray-collared Becard. [17] 2100 to 2500 m. All locations are above the oak scrub portions of the lower slopes, but not to the highest elevations.

Binford (1989) cited "with caution" one 1907 interior record from our area. Mapped absent central Oaxaca by Howell and Webb (1995). Pairs recorded May 5 and Jul 31. Has been found with mixed flocks from Jul 31 to Dec 23. Females were identified as of race *uropygialis*. Both Binford (1989) and Howell and Webb (1995) report it as a vertical migrant. Unrecorded by me Dec 24 to Mar 18, allowing for the possibility that the species departs from the area in late winter, but this point unclear. A very uncommon breeder.

Pachyramphus aglaiae Rose-throated Becard. [82] 1680 to 3050 m. Lower slope riparian areas and high pine-oak forests.

Binford (1989) uncertainly reported an 1881 record from Oaxaca City. Erickson and Hamilton (1993) recorded a single bird in a riparian area on Jun 29. Howell and Webb (1995) reported it as a common to fairly common resident, to 2700 m. It is a common riparian area breeder (66 records Mar to Jul, 1650 to 2250 m) uncommon in winter in high elevation pine-oak forests (eight records, Dec 22 to Feb 6, 2500 to 3050 m).

No previous breeding records here. Parkes (1990), and Hunn et al. (2001) recorded it nesting May to mid-Jun at interior locations in the state outside our area. The earliest date that I have recorded the species in breeding areas is Mar 12, usually not until Apr. Earliest record of paired birds Apr 4. First intraspecific agonistic behaviors seen Apr 14 to 23; first nesting seen Apr 14 to Jun 1 (1998) in five years. Adults have been seen feeding fledglings out of the nest from Jun 26 to Jul 6. Last date for observed breeding activity (adults feeding young in nest) is Jul 22. Individuals not engaged in obvious breeding activity

recorded in the riparian areas to Sep 26, one Dec observation. Observed dates for breeding generally conform to those known for interior locations elsewhere in the state, and to those reported by Rowley (1984) on the Pacific slope near the Chiapas border, but beginning up to a month later than in northern lowland areas as reported by Schaldach et al. (1997).

Recorded in breeding season from seven different riparian zone locations, all interior slope of mountains north of Oaxaca City. Densities are sometimes high, with counts of from four to 16 birds/day not uncommon. Up to five active nests have been seen in a season at the San Felipe riparian area, and a like number in an arroyo north of Teotitlán, with numbers of birds indicating that some other nests are probably not found. Two active nests were located within about 70 m of one another at the Teotitlán location. Estimated nest heights varied from 3 to 15 m. Where available, such as at San Felipe riparian area, the species seems to show some preference for nesting in non-native *Eucalyptus* (Myrtaceae), possibly because of this species' greater average height.

These data contradict Webster's (1963) assessment of this species seasonal movements. He states "there are few records from elevations over 5000 feet…most of these are of vagrants or pioneers." All of my observations are from above that elevation with strong, regular breeding populations. He states that most of the few observations for the species in winter at high elevations are immature males. At least some of my winter observations have been of mature males and females, though I have not recorded age and sex in every case. He also states that there is no evidence of seasonal movement in southern Mexico, while my data demonstrate a strong annual movement into the riparian areas described above. The wintering grounds of these breeding birds are not known, but presumably at least some of them are the same birds recorded in high elevation areas nearby in winter. However, due to the scarcity of winter sightings and the fact that this species is more commonly seen at lower elevations (Hutto 1992), I think that some probably move to lower elevations in winter.

VIREONIDAE

Vireo brevipennis Slaty Vireo. [40] 1750 to 2300 m. Lower elevation arroyos and riparian areas in arid subtropical scrub and oak scrub, occasionally to lower portions of true pine-oak.

No previous breeding records here, but Binford (1989) reported nesting Jun 7, prejuvenile Jun 22 elsewhere in state. Hunn et al. (2001) reported a nesting pair "May – June" in dry woodland of interior slope of southern mountains. I have one record of nest construction Apr 21, abandoned before completion. Paired birds Apr 21, Jun 1. Singing Apr 28 to Jun 22. A juvenile was seen Aug 24. Most (72.5%) observations have been Mar through Jun. This breeding evidence is meager, but indicates possibly moving into riparian/arroyo nesting areas in Mar, nesting Apr to Jun.

Vireo griseus White-eyed Vireo. [2] One May 19, 1999 in riparian vegetation, 1780 m, bird was singing strongly until chased by *Myiopagis viridicata*. One Jan 27, 2000 at the Tequio Park, 1500 m.

One previous report from 1998 Christmas Bird Count, exact location unknown. Rare vagrant.

Vireo bellii Bell's Vireo. [9] To 1680 m. Two fall records Sep 21, Oct 12; four spring records, Apr 5 to 25; one winter record Dec 17 to Jan 8. Arid subtropical scrub mixed with agricultural areas, parks.

Unreported by Binford (1989). Howell and Webb (1995) report it as a fairly common to uncommon transient in interior, Apr to mid-May, Sep. Appears to be less common here, and also a rare winter vagrant., but otherwise my data support their assessment.

Vireo nelsoni Dwarf Vireo. [27] To 2150 m. In brushy vegetation of arroyos and riparian areas.

Unreported by Binford (1989), but Howell and Webb (1995) report it as fairly common to uncommon, local, to 2500 m, an assessment that my data generally support. Both authors indicate uncertain winter movements. I have 19 records in five consecutive years from Mar 4 to Jun 12, eight records in two of five years from Sep 28 to Feb 24. Recorded in two of six Christmas Bird Counts. Seasonal movements uncertain, but my data at least indicate a possible movement in spring into breeding areas.

No previous breeding records here, but Binford (1989) reported nesting elsewhere in state Jun 4. I have seen paired birds Apr 16, intraspecific agonistic behavior Apr 24, singing Apr 4 to May 20. Erickson and Hamilton (1993) recorded the species in riparian zones in our area Jul 6 and 7, singing heard on latter date. This meager evidence indicates breeding in arroyos and riparian areas of lower slopes from Apr to Jun or Jul.

Vireo plumbeus Plumbeous Vireo. [95] 1650 to 2150 m. Most observations from riparian zones of lower slopes, a few from scrub habitats or pine-oak forests.

This and the following two species were previously lumped under the name Solitary Vireo *V. solitarius*. This species can be separated from the others by uniform back and crown color, white or gray flanks (rarely showing a trace of olive), and usually a sharp demarcation between white throat and gray cheeks. Smaller *V.cassinii* shows flanks weakly colored yellow, noticeable but weak contrast between back and crown, and gray of cheeks grading into white of throat. *V. solitarius* shows the strongest contrast between gray crown and olive of back, strongly yellow or olive colored flanks, and a cleanly demarcated change between white of throat and gray of cheeks.

No previous breeding records here, but Binford (1989) reported an active nest Jun 27 in southern mountains. I have recorded singing from Mar 15 to Aug 3, most in Apr and May; paired birds Apr 4 to Jun 16; courtship display Apr 6; gathering nest material Apr 9 and

May 30. Curson and Goguen (1998) report that the species sings throughout the year, but males sing much more frequently during the breeding season. They also state that nest building can begin at almost the same time as pair formation. Thus, these two behaviors can give a good indication of the breeding season. I conclude that the species breeds in our area mostly from Apr through Jun (*contra* Barlow 1980).

Vireo cassinii Cassin's Vireo. [37] 1500 to 3000 m. Oct 10 to Apr 10. Low elevation scrub habitats to pine-oak forests.

Binford (1989) did not differentiate between the three species of the Solitary Vireo complex, reported dates for all three of Oct 12 to May 4. Howell and Webb (1995) report it as a fairly common to common transient, late Aug to May, to 3000 m. My data support Howell and Webb's (1995) observation that of the three "Solitary Vireo" species, this is the one that winters at the highest elevations.

Vireo solitarius Blue-headed Vireo. [48] 1500 to 2600 m. Sep 27 to Apr 30. Low elevation scrub habitats to pine-oak forest.

Binford (1989) did not differentiate between the three species of the Solitary Vireo complex, reported dates for all three of Oct 12 to May 4. Howell and Webb (1995) report it as fairly common to common, Sep to mid-May, to 2500 m. My data support Howell and Webb's (1995) assessment for the species in our area.

Vireo huttoni Hutton's Vireo. [65] 2100 to 3300 m. In pine-oak forests at all elevations.

No previous breeding records in state. May 4 picking lichens from tree bark, presumably nest building; Jun 1 carrying food; Jul 13 adult feeding fledgling. These data provide an incomplete picture of the breeding of this species, probably starting earlier than indicated, but possibly in fact a late breeder.

An interesting aspect of the behavior of this species is its association with mixed flocks early in the year, especially at the highest elevations. I have recorded it in mixed flocks in Jun and Jul as follows: Jun 17, at 3100 m, with *Poecile sclateri*, *Ergaticus ruber*; Jun 24, at 3000 m, with *Poecile sclateri*, *Regulus satrapa*, *Parula superciliosa*; Jul 23, at 3100 m, with *Picoides villosus*, *Psaltriparus minimus*, *Henicorhina leucophrys*, *Peucedramus taeniatus*, *Ergaticus ruber*, *Basileuterus belli*; Jul 31, at 2300 m, with *Picoides villosus*, *Mitrephanes phaeocercus*, *Contopus pertinax*, *Pachyramphus major*, *Vireo gilvus*, *Parula superciliosa*, *Myioborus pictus*, *Myioborus miniatus*, and *Pheucticus melanocephalus*. The adult and fledgling noted above on Jul 13 were also part of a mixed flock whose other component species I did not record.

Vireo hypochryseus Golden Vireo. [138] To 2250 m. Mostly in arroyos or riparian areas surrounded by arid subtropical scrub or oak scrub, once into true pine-oak at 2250 m. Also, recorded three times during the breeding season in the Tequio Park, 1500 m, in non-native, park vegetation.

Unreported by Binford (1989), but Howell and Webb (1995) report it as a common to fairly common resident, to 1900 m. Only 20 of my observations (14.5%) have been in the six months from Sep to Feb. In contrast, the species is abundant in lower slope riparian areas during the breeding season. From early May to early Aug it is not uncommon to record from four to 15 birds/day of this species in these areas. This is similar to Hunn et al.'s (2001) findings in the interior slope of the southern mountains of the state, where they report the species common from May 12 to Jul 19, pairs and singing males in riparian areas, 1700 to 2200 m. Similarly, Hutto (1992) recorded the species only in tropical deciduous forest during winter in western Mexico. Another indicator of winter rarity is the fact that none or only one have been reported on Christmas Bird Counts here in six years.

Breeding previously unreported here. Binford (1989) reported nesting Jun 13, Jul 5 elsewhere in state. Erickson and Hamilton (1993) found the species at three locations during the breeding season in our area. Because of winter stragglers, it is hard to be sure of the earliest date for returning to breeding grounds, but movement into these areas is quite noticeable after mid-Mar, possibly a few returning earlier. First vocalizations recorded Mar 21 to Apr 23 in five years. Paired birds have been seen twice in Mar (15, 25). Singing typically continues until mid-Aug, also heard once each in Sep, Oct, and Nov. Paired birds recorded to Jul 12.

Actual observations of nesting are few. Birds have been seen carrying nesting material on May 13 and 19. A female was seen sitting tightly on a nest on Jun 16, in spite of much movement on my part around and close to the nest. Strangely, on Jul 14 a singing male was seen on the same nest, and presumably the pair had laid twice in the same nest.

I have also recorded this species six times in the Sierra Juárez. Once in the valley of the Rio Grande of San Juan Atepec, the same valley where Binford (1989) reported the species. Pairs and singing birds recorded there on May 30. Five other observations have been in two communities located at about 1000 to 1300 m in heavily modified humid pine-oak forest and coffee plantations. Paired birds and singing recorded in these areas Mar 30 to May 23.

Vireo gilvus Warbling Vireo [164] To 2950 m. Most breeding season observations in riparian areas surrounded by scrub habitats (1700 to 2100 m), but also in riparian areas in pine-oak forests (to 2300 m). More widespread in winter when found from arid subtropical scrub to higher elevation pine-oak forests. Found in mixed flocks during winter in forested habitats.

Binford (1989), Howell and Webb (1995), and Gardali and Ballard (2000) reported the species as migratory only, not breeding here. Binford (1989) reported nest with young Jun 27 in the southern mountains. I have

recorded paired birds and singing birds 36 times, mostly in the months of Apr to Jun, one early pair Mar 15, one late singer Jul 6. Chases and intraspecific agonistic behaviors recorded May 2 to 10. In 1998 a pair were seen building nest May 7, observed on three subsequent occasions attending this nest, including a male singing from it, until May 25. On Jun 26, 2001, at the same location, I observed a pair, one of which was singing and apparently gathering nesting material, but no nest was seen.

Birds of this species are seen in a variety of plumages that can be hard to distinguish in many field situations, and it is seldom that I can assign them to one type or another with confidence. Birds that are fairly uniformly gray on head and upper parts have been recorded Sep 9 to Apr 18. There is some variety of darkness in this group, and I believe that some lighter toned birds may be *gilvus*, but most are probably *swainsonii*. Birds of breeding race *brewsteri* (following Gardali and Ballard 2000) show a very dark gray crown contrasting with a more olive toned back, recorded May 10 to Aug 24, one uncertain winter record Jan 27. Another plumage seen in breeding season is all brown on the crown and upper parts, with crown somewhat darker, recorded from May 18 to Aug 28. I believe that these are *V. leucophrys*, but remain tentative until one can be examined in hand, this due to the similarities in the two species, and because the latter species is supposed to be a cloud forest bird not found in our area.

Vireo philadelphicus Philadelphia Vireo. [5] 1650 to 1760 m. Apr 25 to May 19. Recorded in two spring seasons. Riparian areas, parks.

Previously unreported here. May 19 is a new late date for the state.

Vireo olivaceus Red-eyed Vireo. [9] 1650 to 1750 m. May 15 to Jun 10, 1998. Riparian areas, parks.

Previously unreported here. Jun 10 is a new late date for the species in the state.

Vireo flavoviridis Yellow-green Vireo. [5] 1650 to 1750 m. May 15 to Jun 25, 1998. Riparian areas, parks.

Previously unreported here. Binford (1989) reported breeding beginning May 16 elsewhere in state, so birds present in 1998 were present for more than a month of the breeding season. No evidence of breeding recorded. These are the first interior records for this species in the state.

Discussion

Published data on the breeding of Oaxaca birds are still quite limited. Only Rowley (1966, 1984) attempted to consistently gather data on this subject, with Binford (1989) and a few collectors contributing some additional information. However, Rowley (1966, 1984) was primarily focused on documenting the nesting of the less common or less known species. His investigations often ignored the more common species, precisely because they are common. Thus, breeding seasons are unknown or poorly known for many breeding species in Oaxaca. There are still a number of Oaxacan breeding birds for which breeding behavior has never been observed and documented in the state.

Of the 25 species for which I supply some new information on breeding, 17 are riparian/arroyo breeders in our area. In fall and winter these same species are primarily conspicuous in riparian areas by their absence. Without further study, all that can be said with certainty is that they breed in lower slope riparian areas and leave after breeding. Where they go, and how far, remain unclear. Their disappearance from the area is so marked that Binford (1989) did not record three of them in the area, even though two of the three, *Myiopagis viridicata* and *Vireo hypochryseus*, are in fact abundant breeding birds here. Others (e.g. *Contopus pertinax*, *Pyrocephalus rubinus*) were considered to be resident in the area, but their use of riparian woodlands was not noted.

Six species have been primarily or exclusively recorded as riparian breeders: *Myiopagis viridicata*, *Contopus sordidulus*, *Tyrannus crassirostris*, *Pachyramphus aglaiae*, *Vireo hypochryseus*, and *V. gilvus*. *Empidonax occidentalis* is primarily known as breeding in these areas also, but its breeding habitat requirement has less to do with the vegetation than with physical structure of shady ravines. To this list can be added *Leptotila verreauxi*, and *Trogon elegans*, as they certainly are riparian area breeders, though breeding observations have not been recorded. Indications are that *Vireo brevipennis*, *V. nelsoni*, and *V. plumbeus* breed primarily in these areas, the first two possibly in somewhat drier arroyos also. Species breeding in riparian areas and arid subtropical scrub are *Zenaida asiatica*, *Amazilia beryllina*, and *Pyrocephalus rubinus*. Species breeding in riparian areas and parks and gardens are *Camptostoma imberbe*, *Pitangus sulphuratus*, and *Myiozetetes similis*. *Contopus pertinax* is found breeding in riparian areas and high elevation pine-oak forests.

Of the 25 species for which I have provided some data on breeding season in this report, only *Amazilia beryllina* is a late summer breeder (Jun to Oct). All of the rest breed primarily in the months of Apr to Jul, with a few beginning in Mar or extending their season into Aug or even Sep. I have reported previously on the breeding of *Accipiter cooperii* during Apr to Jul (Forcey 2001). Of the species reported in the first article in this series (Forcey 2002), *Elanus leucurus'* breeding season is hardly known but appears to be from Feb to Jun, and *Ortalis poliocephala* is thought to breed Mar to May, probably longer. Two aquatic species, *Tachybaptus dominicus* and *Gallinula chloropus* breed late, beginning in Jul.

Of the 19 species newly reported or for which I confirm single previous sightings, 13 are thought to be vagrants. Of this number, four hummingbirds, *Amazilia viridifrons*, *Lamprolaima rhami*, *Heliomaster constantii*, and *Tilmatura dupontii* are presumed to enter the Central Valleys from relatively nearby areas, not during long-distance migration. Indeed, the latter two species have

been recorded in the area after migration would normally have passed.

Seven of the other nine species, *Empidonax flaviventris*, *E. virescens*, *Myiarchus crinitus*, *Myiodynastes luteiventris*, *Vireo philadelphicus*, *V. olivaceus*, and *V. flavoviridis* were recorded mostly in the spring of 1998. Only three of the seven were recorded subsequently in other spring seasons; two of these once each in fall. Not only were many new species recorded for the area in that season, but many species were recorded later than in other years.

For six newly reported or reconfirmed resident species, the presumed reasons for the lack of previous reports vary. *Caprimulgus ridgwayi* is nocturnal, also possibly rare. *Panyptila sanctihieronymi* is rare and local. *Amazilia cyanocephala* is found locally in an area not frequented by visiting birders. *Momotus mexicanus* is not found in the Central Valleys but in a remote area to the north of our area where at least four other primarily west-Mexican species have been found (Binford 1998). *Pachyramphus major* is very uncommon and possibly leaves the area in winter. It is more difficult to explain the lack of observations of *Myiozetetes similis* prior to 1996. Regularly seen in two public parks near Oaxaca City and occasionally seen elsewhere, it is a mystery as to why visiting birders had not previously reported this species. Possibly it is in fact a recent colonizer. The fact that it is strongly associated here with non-native, park vegetation would tend to support this theory.

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