Desert Washes during Migration, Gran Chaco Wintering by Western Yellow-billed Cuckoos

Southern Sierra Research Station
Conserving biological diversity through research

Diane Tracy and Shannon E. McNeil

Southern Sierra Research Station, PO Box 1316, Weldon CA 93283

www.southernsierraresearch.org; dtracy.ssrs@gmail.com

Introduction

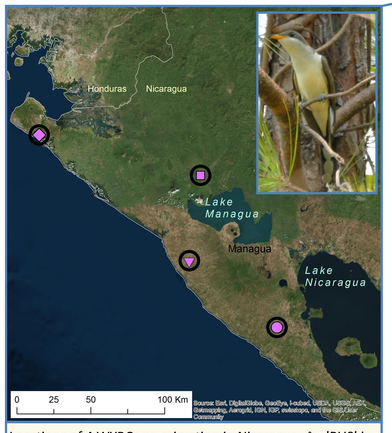
There is limited knowledge of habitat used by birds during migration—typically the most dangerous period of the life-cycle for Neotropical migrants. Wintering locations of many threatened populations also remain poorly known.

Previous migration data for threatened Western Yellow-billed Cuckoos (*Coccyzus americanus*, WYBC) collected via light-level geolocation has high mean error[1]. Actual locations may help to identify areas used and in need of increased protection.

One of 14 Western Yellow-billed Cuckoos fitted with GPS tags at their breeding site near Blythe CA July-August 2014 and 2015. Inset: GPS tag attached to leg-loop harness, sitting in lower back. Photos by Southern Sierra Research Station.

Methods

GPS tags were fitted to 14 WYBCs in 2014 & 2015 at Palo Verde Ecological Reserve, a 400-ha cottonwood-willow forest planted 2006-2012 near Blythe CA under the Lower Colorado River Multi-Species Conservation Program. Six were recaptured the following year, 5 still with GPS tags. Google Earth/photos were used to assess habitat/land use. **Specifications:** 1.1g Lotek PinPoint-10 GPS+0.7g transmitter+0.9mm leg-loop harness=1.8g total (≤3% total body mass). Up to 11 GPS positions were recorded per bird.



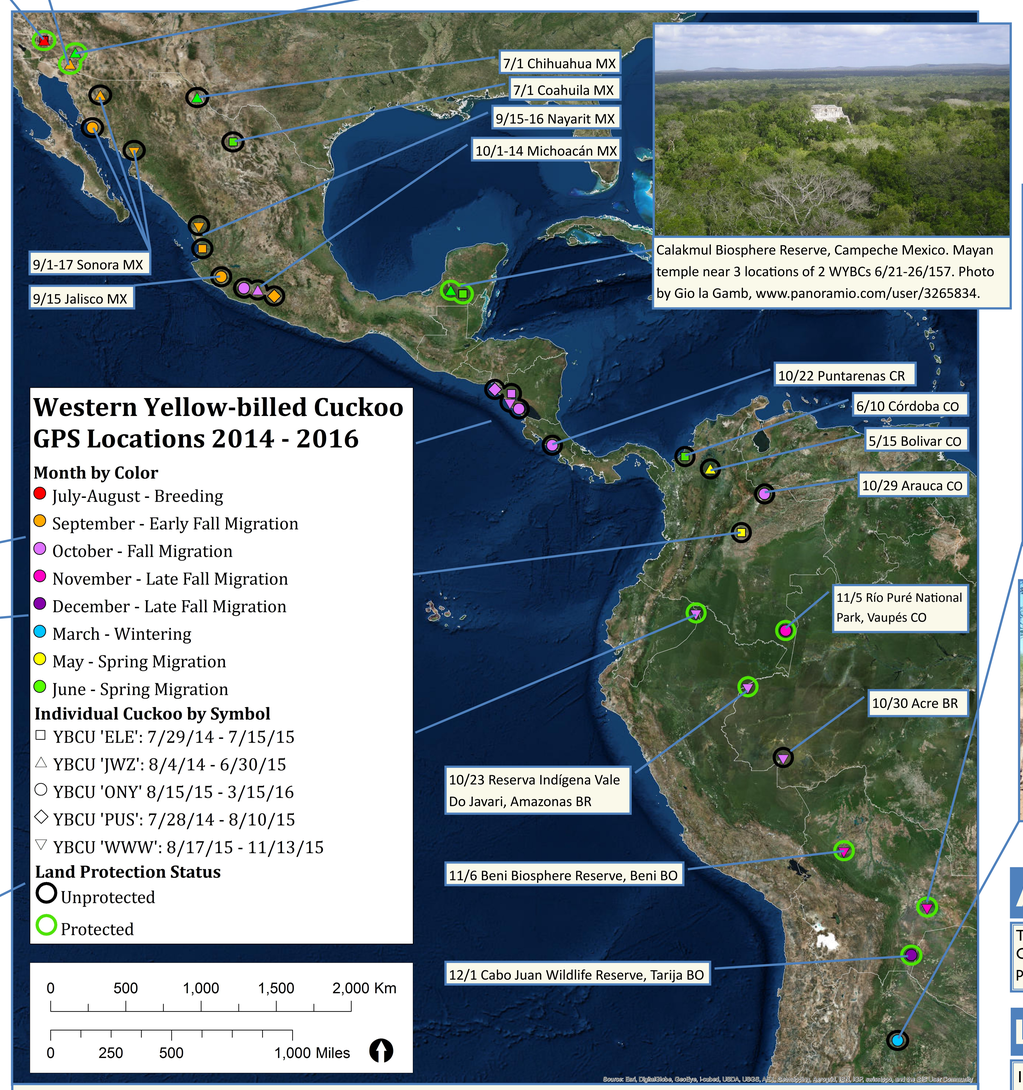
Locations of 4 WYBCs on migration in Nicaragua. ◇: 'PUS' in mangroves, Chinandega 10/14/14; □: 'ELE' on edge of agricultural field, León 10/15/14; ▽: 'WWW' in forest, Managua 10/2/15; ○: 'ONY' in scattered trees, Granada 10/15/15. Black circles show all locations are outside formal protection. **Photo**: WYBC on migration in pine forest, Cinco Pinos, Chinandega 4/23/16. Photo by Orlando Jarquín, Paso Pacifico.

Rio Meta, Meta Colombia, near WYBC 'ELE' location 5/5/15. Photo by bojonovi, www.panoramio.com/photo/17440300.

Cuyabeno Wildlife Reserve, Sucumbios Ecuador, near WYBC 'WWW' location 10/16/15. Photo by Henry Moya, www.panoramio.com/photo/115809265.

Upland desert wash dominated by Ironwood/Palo Verde, Cabeza Prieta National Wildlife Refuge near Ajo, AZ. Location of WYBC 'JWZ' 8/20/14, Photo by Diane Tracy.

Desert wash dominated by Ironwood/Palo Verde, Sonoran Desert National Monument near Gila Bend AZ. Location of 'JWZ' 6/26/15. Photo by D Tracy.



Locations of 5 Western Yellow-billed Cuckoos tracked from Blythe CA to South America, July 2014 to July 2016. 11 of 33 recorded GPS points were in protected areas. **Pre- and post-breeding**: two points fell in southern Arizona: Cabeza Prieta National Wildlife Refuge post-breeding, and Sonoran Desert National Monument pre-breeding. **Fall:** migration follows the Pacific coast of Mexico/Nicaragua; clusters in Michoacán and Nicaragua. **Late Fall/Winter:** 3 points were recorded in the Gran Chaco of southern Bolivia and northern Argentina November 13 -March 15. **Spring:** Cluster of points in Campeche, Mexico; unknown route from Colombia to Campeche, or from Campeche to Northern Mexico.

Calakmul Biosphere Reserve, Campeche Mexico. Mayan temple near 3 locations of 2 WYBCs 6/21-26/157. Photo by Gio la Gamb, www.panoramio.com/user/3265834.

Conclusions

Migratory Stopovers by Western Cuckoos

- Stopover locations are not limited to riparian forest corridors, unlike preferred breeding habitat; all stopover points in Arizona and northern Mexico were in desert washes.
- A third of all points recorded within protected areas (green circles on map) highlights the importance of these forested areas during migration.
- Unprotected areas used by most birds, such as coastal Mexico and Nicaragua, may warrant increased protection. All five WYBCs were recorded between Nayarit and Michoacán mid-September to mid-October, and four of five were recorded in Nicaragua in October (see inset map).

Threats to Migratory Birds

- Large-scale energy developments may impact significant expanses of stopover habitat in the Sonoran, Mohave and Chihuahuan deserts of the USA and Mexico.
- Conversion of forest to agriculture continues throughout their migration and winter range[2]. In January 2015 alone, the Gran Chaco region—the apparent winter grounds of WYBCs—lost 36,355 hectares of forest, averaging 1,173 hectares destroyed daily[3].

Future

- GPS data from more birds across the species' range will better determine migration and wintering patterns, and key use areas that may benefit from increased protection.

Kaa-Iya del Gran Chaco National Park, Santa Cruz Bolivia, near WYBC 'WWW' location 11/13/15. Photo by Bolivianland Co., www.panoramio.com/photo/93428788.

Expanding farm land in the Bolivian Gran Chaco region outside of protection. In January 2015 alone, the Gran Chaco region—the apparent winter grounds of WYBCs—lost 36,355 ha of forest, averaging 1,173 ha destroyed daily[3].

Cattle ranch in Santiago del Estero, Northern Argentina, in an unprotected area of the Gran Chaco near the winter location of WYBC 'ONY' 3/15/16. Photo by viajero1902, www.panoramio.com/photo/115336575.

Acknowledgments

The Bureau of Reclamation (Contracting Officer Representative Barbara Raulston), Lower Colorado River Multi-Species Conservation Program funded the long-term Western Yellow-billed Cuckoo monitoring project that made this study possible. We also thank our 2014-2016 field crews and staff of the Southern Sierra Research Station and Parametrix.

Literature Cited

1. McNeil SE, D Tracy, and CD Cappello (2015) Loop Migration by a Western Yellow-billed Cuckoo Wintering in the Gran Chaco. Western Birds 46:244-255.
2. Ramirez-Villegas J, A Jarvis, J Touval (2012) Analysis of threats to South American flora and its implication for conservation. J. Nat. Con. 20:337-348.
3. www.worldlandtrust.org/news/2015/03/gran-chaco-region-89833-acres-forest-loss-january-2015.