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## Non-exotic invasion of Great-tailed Grackles *Quiscalus mexicanus* in a tropical dry forest reserve

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We report two recordings of Great-tailed Grackles *Quiscalus mexicanus* in the Chamela Biosphere Reserve, which is an important conservation area for pristine tropical dry forests in West Mexico. These recordings are important for three main reasons: (1) they reveal the recent encroachment of the reserve by human-disturbed areas; (2) the recorded grackles fought with West Mexican Chachalacas *Ortalis poliocephala*, and won, underlining their possible negative effects towards other native bird species; and (3) if Great-tailed Grackles successfully invade the conservation area, it could turn into an unmanageable scenario with possible negative consequences within an important area for bird conservation in the dry tropics.

Key words: dispersal, Great-tailed Grackle, *Quiscalus mexicanus*, tropical dry forest, Chamela, Mexico

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Invasive species play a significant role in global change, representing a threat to biodiversity (Vitousek *et al.* 1997). Although a great proportion of invasive bird species are exotic (e.g. House Sparrow *Passer domesticus* in the Americas), some native bird species are also able to invade new areas by dispersing through matrixes of human-disturbed habitats (e.g. Canyon Towhee *Pipilo fuscus*, Great-tailed Grackle *Quiscalus mexicanus*). Successful native invasive bird species could have dramatic effects on local avifaunas, a process tended to be ignored because the invaders are native to the country where their invasions occur.

The Great-tailed Grackle is a large-sized icterid presently distributed from southern Canada to Peru (Stiles & Skutch 1989, Howell & Webb 1995, Sibley 2001). This grackle has broadened its distribution in the last 150 years, expanding from southern Mexico, to

central-northern Mexico, most of the USA, and part of Canada. This expansion is closely related to landscape matrixes generated by agricultural and urban activities (Wehtje 2003). In Mexico, the Great-tailed Grackle is highly successful in urban areas, filling a niche similar to what Rock Pigeons *Columba livia* and European Starlings *Sturnus vulgaris* occupy in Europe (Christensen 2000).

### Results and discussion

Although the Great-tailed Grackle is well distributed along human-disturbed landscapes in Mexico, it does not enter natural habitats. We were surprised to record this grackle within the tropical dry forest of the Chamela-Cuixmala Biosphere Reserve. Our first sight-recording was in February 2008, when a male Great-tailed Grackle was recorded within the build-up area of

the Chamela biological station (19°29'52"N, 105°02'39"W, 90 m a.s.l.). Our second observation was conducted in early May 2009, when we sight-recorded four males and one female Great-tailed Grackles in the edge between the forest and the biological station, competing for food-leftovers (vegetables and fruit) besides the station's kitchen, where other wildlife species feed daily (e.g. West Mexican Chachalaca *Ortalis poliocephala*, San Blas Jay *Cyanocorax sanblasianus*, Yellow-winged Cacique *Cacicus melanicterus*, Back-streaked Oriole *Icterus pustulatus*, Collared Peccary *Tayassu tajacu*, White-nosed Coati *Nasua narica*).

The nearest areas from where the grackles could have dispersed to the biological station are a trash dumping site and a crop-field area, both located ~2.7 km away. Although several urban settlements, where the grackle is present and abundant, are quite close to the biological station (Careyes: 6.7 km; San Mateo: 9.4 km; Juan Gil: 11.4; Zapata/Villa: 14.9 km), this species has never been recorded in the station grounds since the reserve was established in 1971 (Hutto *et al.* 1985, Arizmendi *et al.* 1990, Ornelas *et al.* 1993). Furthermore, during intensive mist netting and point-counts from 1999 to 2001, and from 2004 to 2008, we did not capture or observe grackles within the Biosphere Reserve (Vega-Rivera, Schondube & MacGregor-Fors, unpubl. data).

We consider these recordings important for three reasons. First, finding the Great-tailed Grackle in the build-up area of the Chamela Biological Station suggests that human disturbance encroaches upon the reserve (Vega-Rivera *et al.* 2004). This could explain why the grackles were able to find a small patch of suitable habitat completely surrounded by pristine forest. Indeed, an analysis of regional landcover change using remote sensing shows a decrease in forest cover and an increase in fragmentation around the biosphere reserve in the last seven years (Sánchez-Azofeifa *et al.* 2009). Secondly, we recorded two male grackles fighting successfully for food with West Mexican Chachalacas, a species which is almost three times heavier. This pinpoints their possible effect towards local neotropical bird species. Finally, although we do not know the impact of Great-tailed Grackles on the bird community of the preserve, if this species settles in the area we expect a negative effect on the local avifauna. This is worrisome because the Chamela-Cuixmala biosphere reserve is a crucial area for bird conservation in the dry tropics (Arizmendi & Márquez-Valdelamar 2000, Arriaga *et al.* 2000, Stattersfield *et al.* 1998).

While we are starting to understand the effects that invasive bird species have on native avifaunas

(Blackburn *et al.* 2009, MacGregor Fors *et al.* 2009), we know even less of the consequences that the invasion of new habitats by a native non-local species can have on bird communities. Usually this problem does not get public attention because it represents a conflict of native local vs. native non-local species. Due to the negative effects that human-commensal native non-local invasive bird species could have on native local communities, we suggest that Great-tailed Grackles should be removed from the area to avoid an unmanageable invasion scenario. However, given the present context of fragmentation and habitat modification by human activities that favour a few generalist human-commensal bird species, we can wonder whether the removal of Great-tailed Grackles from the Chamela Biological Station is going to be helpful. In other words, will we be able to safeguard specific native local bird communities in the light of the changing world? And at what cost?

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## Samenvatting

In 2008 en 2009 werden in het droog- tropische bosreservaat Chamela-Cuixmala in het westen van Mexico twee waarnemingen van Langstaarttroepialen *Quiscalus mexicanus* gedaan. Deze soort komt van het zuiden van Canada tot in Peru voor. Het was een schok deze commensaal van mensen in een ongerept tropisch bos aan te treffen. Dat te meer daar een conflict om voedsel met de driemaal zo zware West-Mexicaanse Chachalaca *Ortalis poliocephala* door de Langstaarttroepiaal werd gewonnen. Bij de problematiek rond invasieve soorten wordt er gewoonlijk van uitgegaan dat de kolonisten exoten zijn. In dit geval, echter, gaat het om een inheemse soort die een kwetsbaar en ongerept habitat binnendringt, daartoe in staat gesteld door negatieve ontwikkelingen buiten het park (habitatversnippering en verstedelijking). De vraag is: wat te doen? Verwijdering van de binnendringers zal op den duur, bij voortschrijdende menselijke invloed rond het reservaat, steeds moeilijker en kostbaarder worden. Een niet ingrijpen zou echter grote consequenties kunnen hebben voor de kwetsbare lokale avifauna. (RGB)

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