parent pair began a new series of calls. This exchange continued until 1512 H when a male from one of the intruding pairs landed on the nest and covered the young with his wings spread for 30 sec. The male from the foster pair then flew to the nest and drove off the intruding male. The foster female immediately joined her mate and the pair drove the four intruders away from the nest. The foster pair circled the nest site at 1520 H and then flew back to their earlier perches on the opposite side of the lake.

The adults made no further vocalizations or flights until 1600 H when they both flew to the nest. They remained on the nest, with the young, until 1630 H when the male left. While he was absent the female left the nest at 1640 H and returned to her original tree perch across the lake. At 1642 H a crow (*Corvus brachyrhynchos*) dove at the young and the female quickly returned to defend them. At 1730 H the male returned to the nest with a fish, gave it to the female and flew off once more. She then began to feed both young but after feeding them only a few bites she again flew to her tree perch. Her brief efforts to feed the young stimulated prolonged pecking between the nestlings and again blood was drawn. At 1800 H, after a 25 min absence, the female returned to the nest and began feeding the young a second time. The male returned at 1810 H with a Small-mouthed Bass (*Micropterus dolomieui*) and the female continued to feed the young. Both parents remained on the nest until after 2100 H when the male returned to his regular night roost; the female remained overnight on the nest with the young. Both adults continued to care for the young and their parental activity appeared normal. The nestlings were fed well and protected by their foster parents throughout the nesting period.

RESUMEN.—En 1988, polluelos huéspedes fueron puestos en el nido de dos Aguilas Pescadoras adultas, marcadas y criadas en caja abierta desde 1982, para reemplazar sus crías que dos semanas antes habían desaparecido a causa de un predador. Los adultos aceptaron los hijos adoptivos desde el día en que reemplazaron a sus propios polluelos, y continuaron cuidando de ellos normalmente durante el período de anidar. Por esto se cree que si polluelos desaparecidos son posteriormente reemplazados por otros en el nido, éstos pueden ser aceptados por Aguilas Pescadoras y otras especies de aves rapaces.

[Traducción de Eudoxio Paredes-Ruiz]

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DAYTIME ACTIVITY OF LITTLE OWLS (*Athene noctua*) IN SOUTHWESTERN SPAIN

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Little Owls (*Athene noctua*) do not limit their activity to darkness even though they belong to a group of nocturnal raptors. The degree of nocturnal activity likely varies between geographic regions and although Valverde (1957) watched Little Owls with young in the nest hunting throughout the day in Morocco, Cramp (1985) reviewing

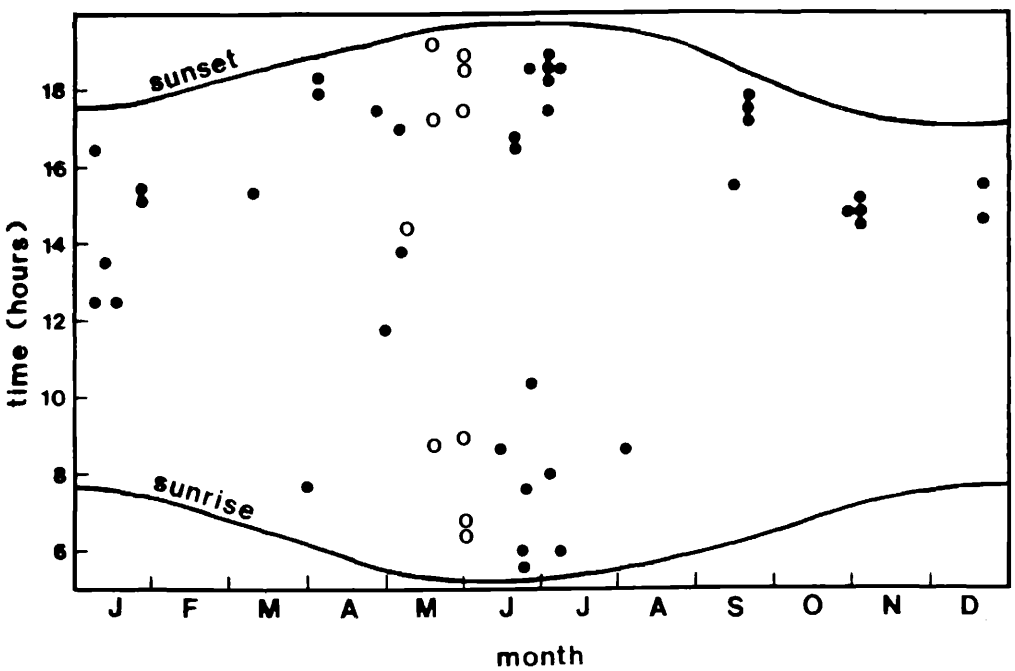

Figure 1. Little Owl observations (●) and captures (○) in daytime. The curved lines show times of sunrise and sunset in Seville (37°22'N–6°00'W).

other authors, stated that Little Owls hunt little or never during the day.

In southwestern Spain we have repeatedly observed Little Owls in daytime on exposed perches such as power poles, fences or boundary stones suggesting that they could be hunting. Our data (Fig. 1) were collected between 1980 and 1986 and refer to owls seen while driving in a car along roads in Extremadura and Andalusia, through cereal-growing areas, olive stands, wood pasture and meadows. The owls use exposed perches throughout the year (Fig. 1), although primarily between May and July, corresponding to the breeding season (Cramp 1985). Most sightings were after midday and this agrees with Exo (1989) that Little Owls are more active in the second part of the day than in the first.

Further evidence of daytime activity by Little Owls was obtained while trapping European Kestrels (*Falco tinnunculus*) and Lesser Kestrels (*F. naumanni*) with Bal-chatris (Berger and Mueller 1959). Nine adult Little Owls were also caught, attracted by the live laboratory mouse (*Mus musculus*) used as bait. To place the Bal-chatris we followed a line trap method (Bloom 1987). We set 4 to 20 traps that were visited every 30 to 60 min.

The Little Owls were caught at two sites in Sevilla Province characterized by extensive fields of cereals and sunflowers. At site one, a small rock outcrop, in 1988 and 1989 we caught 6 individuals in 7 days trapping. At site two, an old castle 15 kilometers away, we trapped for 2 days and caught 3 Little Owls on the second day. The owls were banded and released at the capture site.

Why some Spanish Little Owls extend their period of activity into the day remains unclear. Jaksić (1982) proposed that the evolution of nocturnal activity in owls could be related to the avoidance of interference interactions with diurnal raptors. The Little Owl, being of small size, has a wide range of potential predators and competitors. It is known to occur in the diet of the Northern Goshawk (*Accipiter gentilis*), European Sparrowhawk (*A. nisus*), Peregrine Falcon (*Falco peregrinus*) and Black Kite (*Milvus migrans*) (Uttendörfer 1952, Valverde 1967). In southwestern Spain, specialized bird-eating raptors are rare. Goshawks and Sparrowhawks are at the southern limit of their distribution and, according to our observations, only nest in forested areas at higher altitude. Peregrines exist in our study area at their lowest nesting densities in Spain (Heredia et al. 1988). The relaxation of pressure from diurnal predators could favor Little Owls extending their hunting time into daylight hours. Supporting such an explanation is the fact that in Doñana National Park, a location in southwestern Spain where the density and diversity of diurnal raptors is unusually high (Valverde 1967, García et al. 1989), Little Owls remain hidden during the

day (M. Máñez, pers. comm.). However, the degree of diurnal activity in Spanish Little Owls may also be influenced by other factors, such as prey availability, daily activity patterns of the prey species, or the energetic constraints while rearing the young in summer.

RESUMEN.—Entre los años 1980 y 1986 se registraron 40 mochuelos (*Athene noctua*) posados en lugares expuestos durante el día. Las observaciones, realizadas desde automóvil por carreteras de Extremadura y Andalucía, se produjeron en todas las épocas del año, y especialmente en la época de cría. Posteriormente, se capturaron 10 individuos durante el día mediante trampas Bal-chatri cebadas con ratones vivos y se obtuvo así una nueva evidencia de la actividad de los mochuelos en horas de luz. Sugerimos que el elevado grado de actividad diurna de los mochuelos del suroeste de España está relacionado con la escasez de potenciales predadores, como el Halcón Peregrino (*Falco peregrinus*) o el Azor (*Accipiter gentilis*). No descartamos, sin embargo, que intervengan también factores relacionados con la disponibilidad de presas o la actividad diaria de las mismas.

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