

Gall insects as important food for Blue Tit *Parus caeruleus* in a mediterranean area

Fulvio Fraticelli

Stazione Romana Osservazione e Protezione Uccelli

Oasi Naturale WWF "Bosco di Palo"

Via Palo Laziale 2, 00055 Ladispoli (Roma)

Many species of birds feed on gallicolous insects (DuBow 1983, Spofford 1977), in particular some species of *Picoidea* (Cramps 1985, Confer et al. 1986); this feeding behaviour is cited generically for *Parus* by Gauss (1982) and for Blue Tit *Parus caeruleus* by Clamens & Dervieux (1988) but only related to galls of *Neuroterus aprilius* (Hymenoptera, Cynipidae). In this short communication I report some observations showing that some gall insects are an important food source for the Blue Tit in a mediterranean area.

The observations were made at the World Wildlife Fund "Bosco di Palo" Natural Oasis at Ladispoli (Rome, 41°56'N; 12°05'E). The forest consists of *Quercus cerris* (75.6%), *Q. ilex* (16.7%), *Q. pubescens* (2.7%) and other species of deciduous trees (5.0%) (Fraticelli & Sarrocco 1984). The grasslands around the forest mainly consists of Compositae and Graminaceae.

I consulted Pellizzari Scaltriti (1988), Rivosecchi (1960) and Stubbs (1986) for the determination of gall insects.

I report the following observations of Blue Tits feeding on gallicolous insects:

- during the winters from 1984 to 1990 I observed Blue Tits feeding on agamic generation galls of *Andricus dentimitratus* (Hymenoptera, Cynipidae) on *Quercus pubescens*; these galls are opened by Blue Tits by removing the distal part with the bill and thereby entering the gall cavity;

- on 21 April 1986 I observed a Blue Tit feeding on a sexual generation gall of *Biorhiza pallida* (Hymenoptera, Cynipidae) on *Quercus pubescens*;

- on 23 April 1986 I observed a Blue Tit feeding on a sexual generation gall of *Neuroterus quercusbaccarum* (Hymenoptera, Cynipidae) on male catkins of *Quercus pubescens*;

- during the winters from 1984 to 1990 I observed Blue Tits feeding on galls of *Myopites stylata* (Diptera, Trypetidae) on flower-heads of *Inula viscosa* (Compositae), a very common plant in the grassland area; these ligneous galls are held in position with the foot and opened with the bill.

Of 174 galls of *Andricus dentimitratus* chosen at random on 3 March 1986 8 (4.6%) showed obvious signs that the insect had been eaten by Blue Tit. Of 150 galls of *Myopites stylata* chose at random on 3 March 1986, 47 (31.3%) showed obvious signs that at least some larvae (every gall contains around ten larvae) had been eaten by Blue Tit. 62 Blue Tits were captured by the ringing station in the Palo Oasis during November-February of 1984-85 and 1985-86, of these 58 (93.5%) showed feathers around the bill covered by the sticky secretion that cover *Andricus dentimitratus* galls.

These data suggest that Blue Tits feed on gallicolous insects and these larvae may be a high percentage of the winter food of Blue Tits in mediterranean areas.

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RIASSUNTO - Gli insetti galligeni sono un'importante fonte di cibo per la Cinciarella *Parus caeruleus* in una zona mediterranea.

- Vengono riportate alcune osservazioni di Cinciarelle che si alimentavano di varie specie d'insetti galligeni nell'Oasi WWF "Bosco di Palo" presso Roma.

- Il 4.6% delle galle dell'Imenottero *Andricus dentimitrans* ed il 31.3% di quelle del Dittero *Myopites stylata* sono risultate predate dalla Cinciarella.

- Si ipotizza che gli insetti galligeni siano un'importante fonte di cibo invernale per questa specie.

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