LETTER

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FOOD HABITS OF THE MACARONESIAN SPARROWHAWK (*ACCIPITER NISUS GRANTI*) ON MADEIRA

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The Eurasian Sparrowhawk (*Accipiter nisus*) is a small bird of prey distributed throughout Europe and Asia and closely linked to forest environments. It is a predator of a wide diversity of prey, primarily birds (Newton et al. 1986). On the mainland, the male Eurasian Sparrowhawk typically captures small birds (40–120 g in mass), whereas females (nearly twice the mass of males) prey on larger birds (up to 500 g; Opdam 1975, Newton 1978). Before and during egg-laying, during incubation, and until the nestlings are half-

grown, females usually do not hunt, and males provide food for them. Then, females gradually start hunting as the nestlings demand more food (Newton et al. 1986). Hence, prey species are captured almost exclusively by males during most of the incubation and early nestling stages. During these stages, smaller prey would thus be expected, compared to the post-fledging period. Here, we quantified the prey species composition across two consecutive breeding seasons of the Madeira Sparrowhawk (*Accipiter nisus granti*), a subspecies whose feeding habits have never been studied.

The Macaronesian Sparrowhawk is a subspecies endemic to five Canary Islands (La Palma, La Gomera, El Hierro, Tenerife, and Gran Canaria) and Madeira (32°44'N, 17°00'W; Martín and Lorenzo 2001). From April to September 2014 and 2015, two observers visited an area

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Table 1. Prey composition of Macaronesian Sparrowhawks by number of prey items (*n*), percentage of total prey (% P) and percentage of total biomass (% B) during the breeding periods of 2014 and 2015 on Madeira.

PREY	BODY MASS (g)	2014			2015			TOTAL		
		<i>n</i>	% P	% B	<i>n</i>	% P	% B	<i>n</i>	% P	% B
Columbiformes										
Rock Dove (<i>Columba livia</i>)	331.5	29	26.6	35.5	27	8.4	15.9	56	13.0	22.2
Madeira Laurel-Pigeon (<i>Columba trocaz</i>)	455.0	30	28.0	51.0	78	24.0	64.0	108	25.0	60.0
Total		59	54.1	86.7	105	32.5	79.8	164	38.0	82.0
Falconiformes										
Common Kestrel (<i>Falco tinnunculus canariensis</i>)	170.0	3	2.7	2.6				3	0.7	0.8
Passeriformes										
Eurasian Blackcap (<i>Sylvia atricapilla</i>)	15.2	2	1.8	0.1	21	6.5	0.6	23	5.3	0.4
Eurasian Blackbird (<i>Turdus merula cabreræ</i>)	90.6	29	26.6	9.7	106	33.0	17.0	135	31.0	14.6
Spotted Flycatcher (<i>Muscicapa striata</i>)	16.0				1	0.3	0.0	1	0.2	0.0
European Robin (<i>Erithacus rubecula rubecula</i>)	15.7	1	0.9	0.1	4	1.2	0.1	5	1.2	0.1
Madeira Firecrest (<i>Regulus madeirensis</i>)	6.6	3	2.7	0.1	7	2.2	0.1	10	2.3	0.1
Common Chaffinch (<i>Fringilla coelebs madeirensis</i>)	22.1	6	5.5	0.5	8	8.0	1.0	14	7.4	0.8
European Greenfinch (<i>Chloris chloris</i>)	17.4				10	3.1	0.3	10	2.3	0.2
Island Canary (<i>Serinus canaria</i>)	14.6	6	5.5	0.3	28	8.7	0.7	34	7.9	0.6
Common Linnet (<i>Linaria cannabina guentheri</i>)	17.5				3	0.9	0.1	3	0.7	0.1
European Goldfinch (<i>Carduelis carduelis parva</i>)	13.7				12	3.7	0.3	12	2.8	0.2
Total		47	43.0	10.8	218	67.5	20.2	265	61.3	17.1
Unidentified birds		1			37			38		
Total prey		110			360			470		

of approximately 2 km² at each of 51 sparrowhawk nesting territories distributed across the island of Madeira (see Hervías et al. 2017 for further details on nesting territories). Within each nesting territory, we collected new prey remains (feathers and body parts) at plucking sites at least once per month during the incubation–nestling (April–June) and post-fledging and dispersal periods (July–September; Delgado et al. 1988). For identification of prey at the species level, we used reference material from Funchal Natural History Museum (Madeira) and Brown et al. (2003). We calculated the average biomass of bird species, based on data obtained from a ringing program (*Sociedade Portuguesa para o Estudo das Aves*), Cramp (1992) and the Funchal Natural History Museum.

The Macaronesian Sparrowhawk used prey from a broad range of size classes, varying from small (Madeira Firecrest [*Regulus madeirensis*], 5 g) to large species (Madeira Laurel-Pigeon [*Columba trocaz*], 390–520 g). Overall, we identified 92% of 470 individual prey belonging to 13 bird species; 39% of these were large birds (i.e., Madeira Laurel-Pigeon, Rock Dove [*C. livia*] and Common Kestrel [Canary Island subspecies, *Falco tinnunculus canariensis*]) and 61% were passerines (mainly Eurasian Blackbird [*Turdus merula cabreræ*], Island Canary [*Serinus canaria*] and Common Chaffinch [Madeira Island subspecies *Fringilla coelebs madeirensis*]). Large species constituted 97% of the total biomass (Table 1). The richness of prey (13 species) was less than reported from other regions, probably due to the small number of bird species present on Madeira (i.e., 22

species within the sparrowhawks’ prey-size range compared to 38 on Tenerife; Delgado et al. 1988). On Tenerife, sparrowhawks captured prey items around 200–300 g, and large- and medium-sized species made up 80% of the total biomass (namely, Rock Dove, Eurasian Blackbird, Barbary Partridge [*Alectoris barbara*] and Dark-Tailed Laurel-Pigeon [*C. bollii*]; *n* = 575; Rodríguez et al. 2020). Therefore, the biomass contribution of larger species seemed to be greater among the sparrowhawks on Madeira.

The Madeira Laurel-Pigeon, which is heavier than the Macaronesian Sparrowhawk (150–320 g), was the main prey during the incubation–early nestling stage. If we assume that females do not hunt during the incubation period, as documented for Eurasian Sparrowhawk elsewhere (Newton 1978), the fact that pigeons were consumed at Madeira during that period suggests that males captured this large prey species. Newton (1978) and Selås (1993) also suggested that male sparrowhawks could capture large prey. Further studies are needed to understand if males of other Macaronesian sparrowhawk populations also take large prey.

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