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Raptors Feeding on Migration at Eilat, Israel: Opportunistic Behavior or Migratory Strategy?

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Many raptors migrate long distances. Palearctic migrants often winter in Africa either by using temporary food sources or by filling niches vacated when local residents move farther south (Newton 1979). En route to wintering grounds, feeding strategies for migrants range from complete fasting (Safriel 1968, Moreau 1972, Mead 1983) to daily foraging (Cochran 1975). Here, I report raptors drinking and eating prey while on migration through Eilat, Israel.

Methods

Reports of feeding or hunting raptors were collected for autumn 1993–95 and spring 1994–95 migrations. Observations were made by the staff of the International Birding Center in Eilat and by many casual bird-watchers. Observations were divided into four major categories: (1)raptors observed drinking water, (2) raptors feeding on roadkills along highways, (3) raptors hunting other birds, and (4) raptors fishing along the beach.

Results

Hundreds of honey buzzards (*Pernis apivorus*) and dozens of black kites (*Milvus migrans*) were regularly seen drinking water with a salinity equal to or greater than that of seawater (Table 1). In contrast, short-toed eagles (*Circaetus gallicus*) and lesser-spotted eagles (*Aquila pomarina*) drank only from a sewage canal where effluents of lower salinity flowed to the Red Sea. All four species were observed drinking water only in the spring probably because they migrate farther north or east of Eilat in autumn and only concentrate at Eilat in spring (Yom-Tov 1984, Shirihai and Christie 1992, Bruderer et al. 1994, Yosef 1995). Black kites have previously been observed to hunt arthropods on the wing while migrating through the rift valley (Bahat 1985) and to drink water while migrating through the Algerian Sahara desert (Dupuy 1969). Honey buzzards appear to be particularly dependent on water and drink salty or brackish water along the migratory route which follows the Red Sea (Shirihai and Christie 1992).

Egyptian vultures (*Neophron percnopterus*) were observed feeding either at the municipal landfill or on carcasses at roadkills (Table 1). On three occasions, they were observed interacting aggressively with brown-necked ravens (*Corvus ruficollis*). Two steppe eagles (*A. nipalensis*) were seen feeding on a road kill. Steppe eagles have been observed feeding on carcasses or to come down and investigate the presence of conspecifics on the ground (W.S. Clark pers. comm.).

Harriers (*Circus* spp.) hunted mostly in the dense corridor of reeds (*Phragmites australis*) along a sewage canal No difference or pattern in their hunting strategy was apparent except for the fact that all prey identified were small birds. Most numerous observations were of marsh harriers (*C. aeruginosus*), which is the most common migrating harrier at the site (Yosef 1995).

Similar to harriers, all observations of sparrowhawks (*Accipiter* spp.) hunting involved avian prey. There are very few reports of Eurasian sparrowhawks (*A. nisus*) migrating at the site, although they are observed in town and in the gardens of hotels. Their hunting activities are seldom observed because they hunt and feed in the undergrowth. Accurate estimates of the number of sparrowhawks that migrate through the region have not yet been obtained because the major migration surveys are done in the mountains and not in the rift valley (Shirihai and Christie 1992, Yosef 1995). Northern goshawks (*A. gentilis*), on the other hand, hunt in open areas such as the salt pans in the Eilat region and are easily observed. Levant sparrowhawks (*A. brevipes*) have a brief migration period in spring. The majority of the hunting observations for this species have been of individuals arriving before or after a large wave of migrants, and their prey almost invariably has been doves. Perhaps this is due to the fact that they are nocturnal migrants and feed during the day (Stark and Liechti 1993).

Steppe buzzards (*Buteo buteo vulpinus*) regularly hunt among date palms and along edges of the agricultural fields (Gorney and Yom-Tov 1994), apparently feeding on arthropods and occasionally on rodents. Clark and Gorney (1987) have observed buzzards drinking, but they were not observed to do so in this study.

Golden eagles (*Aquila chrysaetos*) and Bonelli's eagles (*Hieraaetus fasciatus*) hunted in the mountains only and preyed mostly upon larger animals (Table 1). Similar behavior was observed in a booted eagle (*H. pennatus*) in November 1995, but an individual was also seen to catch an Indian house crow (*Corvus splendens*) when they mobbed the eagle in the date palms. An immature imperial eagle (*A. heliaca*) also captured a chukar (*Alectoris chukar*) on the ground in an agricultural field 10 km north of Eilat.

Numerous falcons were seen foraging while on migration; however, it was difficult to determine the prey spe-

Table 1. Raptors observed feeding while on migration through Eilat, Israel. Habitats are numbered as follows: (1) date plantations, (2) other agricultural crop, (3) salt pans, (4) sewage canal, (5) mountain terrain, (6) city of Eilat, (7) seashore, (8) landfill and (9) highways.

RAPTOR SPECIES	PREY SPECIES	SEASON	HABITAT
Egyptian vulture	Refuse, roadkills	Apr, May	8, 9
Montagu's harrier	Bulbul (*Pycnonotus xanthopygos*)	Apr	2
Pallid harrier	Bulbul	Sept	4
	House sparrow (*Passer domesticus*)	Apr	6
Marsh harrier	Spur-winged plover (*Hoplopterus spinosus*)	Sept	3
	Little stint (*Calidris minuta*)	Oct, June	3
	Reed Warbler (*Acrocephalus* sp.)	Mar	4
	Phylloscopus sp.	June	4
	Graceful Warbler (*Prinia gracilis*)	Apr	4
Eurasian sparrowhawk	Sparrow (*Passer* sp.)	Mar, June	6
	Blackcap (*Sylvia atricapilla*)	4 – 94	
Northern goshawk	Black-winged stilt (*Himantopus himantopus*)	Dec	3
	Quail (*Coturnix coturnix*)	June	6
	Pigeon (*Columba livia*)	Oct, Nov, Dec	2, 6
	Collared dove (*Streptopelia decaocto*)	Nov	3
Levant sparrowhawk	Turtle dove (*Streptopelia turtur*)	Apr	1
	Laughing dove (*S. senegalensis*)	Apr	1
	Namaqua dove (*Oena capensis*)	May	3
Steppe buzzard	Unidentified rodent	Apr, May, June	1, 2
	Arthropods		
Golden eagle	Egyptian dab lizard (*Uromastix aegyptius*)	May June	5
	Syrian Hyrax (*Procavia capensis*)	Apr	5
	Brown hare (*Lepus capensis*)	Apr	5
Imperial eagle	Chukar (*Alectoris chukar*)	Oct	2
Steppe eagle	Roadkills	Mar	9
Bonelli's eagle	Sand Partridge (*Ammoperdix heyi*)	Apr	5
Booted eagle	House crow (*Corvus splendens*)	Mar	1
	Brown hare	Nov	5
Osprey	Fish	Mar, Apr	7
Red-footed falcon	Arthropods	Apr	2

Table 1. Continued.

RAPTOR SPECIES	PREY SPECIES	SEASON	HABITAT
Eurasian kestrel	Unidentified rodent	Oct	2
Lesser kestrel	Arthropods	Mar, Apr	2
Peregrine falcon	Redshank (*Tringa totanus*)	Apr	3
Lanner falcon	Little stint	Sept, Oct	3

cies taken owing to the small size and the distance at which they were observed. Their preferred hunting habitat was either open agricultural fields or salt pans where they hunted arthropods or rodents in the former, and waders in the latter.

Ospreys (*Pandion haliaetus*) caught and fed on fish from aquaculture ponds which are used to raise *Oreochromis mozambicus* and *Tilapia mozambicus*. Ospreys have previously been reported to feed while on migration (Kerlinger 1989). Shirihai and Christie (1992) considered ospreys rare migrants at Eilat in autumn. However, all observations were in spring suggesting that the few passing through in autumn do not usually stop at Eilat. During spring, it appears that the majority of osprey continue their migration north through the Eilat mountains (Yosef 1995) and not along the coast. These individuals may be in better body condition than those observed foraging along the shores of Eilat. This is consistent with Candler and Kennedy's (1995) suggestion that the "jump" strategy (foraging at several mid-migration stopovers) is the best strategy for migrating ospreys.

In conclusion, over a period of five migratory seasons, individuals of 23 of the 33 raptor species that migrate through Eilat (Yosef 1995) were observed drinking or hunting. The fact that relatively low numbers were seen to either feed or drink suggested that it was only hungry (Gorney and Yom-Tov 1994) or opportunistic raptors that fed in Eilat. The fact that no species were observed to stop at Eilat *en masse* indicated that the majority of individuals fasted while migrating through the region. Those individuals observed in the area used date palms, agricultural fields and/or mountains around Eilat as roosting sites. During the spring migration, raptors in the eastern Palearctic flyway may attempt to get to their breeding grounds as fast as possible and are probably time minimizers.

RESUMEN.—En cinco estaciones migratorias, individuos de 23 de las 33 especies de rapaces que migran a través de Eilat, Israel, fueron observados bebiendo o cazando. *Pernis apivorus, Milvus migrans, Circaetus gallicus* y *Aquila pomarina,* bebieron agua durante su pasaje sobre el área; *Neophron percnopterus* y *A. nipalensis* fueron observados comiendo en diversos terrenos. *Buteo buteo vulpinus, A. chrysaetos, Hieraaetus fasciatus, H. pennatus, A. heliaca, Circus* spp. y *Accipiter* spp. cazaban mayormente presas vertebradas; *Pandion haliaetus* cogía peces en estanques de aquacultura.

[Traducción de Ivan Lazo]

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