

north in May-June and in the opposite direction towards Sri Lanka in September-October. The place where the dead and injured birds were found suggest that they might have been flying in a north-westerly direction at the time of the accidents. In the absence of detailed information on the seasonal migratory

pattern of the Indian Pitta it is not possible to fully understand the significance of these occurrences at present.

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## 16. PLAYING WITH FIRE ? ALPINE CHOUGHS PLAY WITH A TIBETAN RED FOX

Play behavior has been defined as "all postnatal motor activity that appears purposeless, in which motor patterns from other contexts may often be used in modified forms and altered temporal sequencing" (Bekoff and Byers 1981, p. 300). Some behaviors that initially appear to have an immediate function, may upon further reflection, appear not so. Such behaviors may be play. In this note, we describe an observation that we interpreted to be interspecific play in Alpine Choughs (*Pyrrhocorax graculus*).

Between 06:21 and 06: 22 h on 22 July 1992, M.F. observed 5 or 6 Alpine Choughs circling around and diving in turn at a Tibetan Red Fox (*Vulpes vulpes montana*) in Dhee Sar (36° 81' N, 74° 95' E), Khunjerab National Park, Pakistan. Dhee Sar is a relatively flat hanging alpine meadow (elevation 4,100-4,300 m) bordered by steep ridges on two sides and glaciated peaks on the upper side. A medial ridge bisects the upper portion of the meadow. The choughs and fox were observed from this ridge using 7 x 35 binoculars and a 15-45 power spotting scope. This lookout gave an unobstructed view of the interaction that took place less than 450 m away. The fox was viewed for 10 min prior to the onset of the interaction.

Several or all of the choughs took turns diving to within 1-2 m of the fox while the others swarmed 3-4 m overhead. No vocalizations were heard to accompany this behavior, but a loud glacial stream

flowed between the observer and the location of the incident. When the diving began, the fox immediately ceased walking and either sidestepped or, more commonly, crouched as each chough made its pass. This interaction ended when the choughs flew away after approximately 1 minute, and the fox appeared to continue along its way. No direct contact between the choughs and the fox was observed. Chough (*Pyrrhocorax* spp.) feathers have previously been identified in foxscats collected at Dhee Sar (Blumstein and Robertson, ms).

We identified at least three mutually exclusive interpretations for this observation.

First, the choughs could have been foraging. Tibetan red foxes have been observed carrying prey in their mouths on 5 other occasions and eating at a large carcass on 4 different occasions. (Only two days before, another fox was observed in the same general area carrying a dead marmot). Choughs have been observed scavenging at fox kill sites. Other birds-Bald Eagles (reviewed in Bent 1937), and Ravens (Bent 1946) are known to attack terrestrial predators with prey. The predator may consequently abandon its prey which is then scavenged by the birds. However, we reject this foraging hypothesis as an explanation for the fox-chough interaction; at the time of the attack, the fox was carrying no food.

Second, the Alpine Choughs could have been mobbing the fox to defend nest sites and/or nestlings,

or foraging areas. We will address each of these in turn.

Alpine Choughs are sometimes reported to nest in colonies, and nest sites are primarily located in cracks and niches of cliffs (Roberts 1992). In four summers of work throughout Dhee Sar, no nest sites were ever located. In late July, juvenile choughs appeared adult-sized and foraged in mixed flocks with adults. Furthermore, they appeared quite manoeuvrable-engaging in what appeared to be intraspecific locomotor play. Also, despite our extensive movements throughout the meadow, no Dhee Sar "Resident" (3-5 researchers / assistants) has ever been swarmed and /or dived at by choughs. Thus we reject the nest and/or nestling defense hypothesis on three counts: no colonial nesting site was located within at least 1 km of the interaction site, the nearest potential nest sites (cliffs) were over 100 m away, and fledglings appeared to be as capable as adults in escaping predators.

However, the choughs could have been attempting to discourage the fox from frequenting chough foraging areas (Curio's 1978 "moving on hypothesis"). Foxes have been observed 45 times over 387 days of research at Dhee Sar and Alpine Choughs are seen daily. Yet, never before has anyone seen choughs interact with foxes.

Since "mobbing" is assumed to be risky (Curio and Regelmann 1986), foraging sites should only be defended when there are clear and substantial benefits from mobbing. However, we observed choughs foraging throughout the meadow. The height of the vegetation where the choughs dove at the fox was low and was not significantly different than other locations in the meadow ( $T = 0.5857$ ,  $P > 0.5$ ,  $df = 18$ ). Nor were there obvious depressions or boulders nearby where a fox could hide. In fact, the location was somewhat remarkable for it afforded excellent visibility for a chough-sized bird on the ground. Unfortunately, our sightings of foxes were infrequent enough to prevent a rigorous test of the hypothesis that mobbing discourages foxes from returning to the same location. However, even if we could have

tested this hypothesis, there are other reasons why a fox might not return to the same location in subsequent days. For instance, while the fox was interacting with the choughs, golden marmots (*Marmota caudata aurea*) from at least 6 surrounding groups were aware of the fox, while marmots from 3 of these groups alarm called at the fox. Signals may discourage a predator from hunting in a particular area (sensu Hasson 1991). Since we can identify no specific immediate benefits from diving at the fox, we reject the mobbing hypothesis in both forms.

Third, the choughs could have been playing. We have not been able to reject this hypothesis. Furthermore, several observations support this as a probable explanation of the observed behavior. First, play behavior is most common in gregarious species, and other forms of play have been reported in Alpine Choughs (Ali and Ripley 1987). Avian play is most common in altricial species (Ortega and Bekoff 1987), and choughs are altricial. Play between birds and potential mammalian predators has been reported between Ravens and wolves (Mech 1970). Second, the observed swarming and diving resembles the mobbing behavior often used as a predator deterrent in nesting colonies; it may have been "practice" mobbing, which falls under Bekoff and Byers' (1981) definition of play (i.e., "motor patterns from other contexts", p. 300). Third, Alpine Choughs appear to commonly take risks by approaching humans (Fleming *et al.* 1984, unpubl. obs.), and may perhaps more readily incur the potential costs of play with hetero-specifics. Future benefits (e.g. improved defense of nests or young, or increased abilities to scavenge prey) may outweigh the immediate costs, if any, of playing with a potential predator.

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### 17. SOME NOTES ON THE HABITS AND HABITATS OF WHITE-CAPPED REDSTART *CHAIMARRONIS LEUCOCEPHALUS* (VIGORS)

White-capped Redstart or River Chat *Chaimarrornis leucocephalus* (Vigors) is one of the commonest Chats found along the rivers and streams of hilly areas of Himachal Pradesh. During the last ten years from 1981, the species has been observed

by me in the NW Himalayan states of Jammu & Kashmir, Himachal Pradesh, Western Uttar Pradesh and Punjab. According to Salim Ali and Ripley (1973), this species is a common altitudinal migrant in the Himalayas. The birds start arriving in their