

## SHORT COMMUNICATION

Common Raven *Corvus corax* at play; records from JapanORNITHOLOGICAL  
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of Japan 2002Mark BRAZIL<sup>#</sup>*Environmental Systems Faculty, Rakuno Gakuen University, 582–1 Midorimachi, Bunkyo-dai,  
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Play is a notoriously difficult complex of behaviours to define. While many observers recognise play in general, they struggle to define it. Bekoff (1984), in one widely accepted definition described it as "...all motor activity performed postnatally that appears purposeless, in which motor patterns from other contexts may often be used in modified forms or altered sequencing." More succinctly, play is generally interpreted as any behaviour displayed by an animal which does not seem to have any direct adaptive advantage. The animals involved seem to the observer to engage in the behaviour for the fun of it (Heinrich & Smolker 1998). Among the Passeriformes it is the corvids that are considered to exhibit the most complex play behaviour. The Common Raven *Corvus corax* is the largest of the corvids and its tremendous behavioural flexibility may in part be acquired through play (Ficken 1977; Ortega & Bekoff 1987). Various elements of play behaviour have previously been described among ravens including play catching, flight play, bathing play, vocal play, hanging, games, allospecific interactions, sliding and 'snow-romping' (Ratcliffe 1997; Heinrich & Smolker 1998), but no such behaviours seem to have been described from Asia.

The Common Raven is a widespread, mainly sedentary Holarctic, and marginally Neotropical, species. The subspecies *C. c. kamtschaticus* Dybowski, 1883, was previously, and until recently, considered an uncommon, scarce or even rare winter visitor to a very few areas of Hokkaido, Japan, most often in the coldest part of the winter during January and February most notably on the Shiretoko Peninsula, particularly along rocky seacoasts where there are cliffs (OSJ 1974; WBSJ 1982; Yanagisawa 1988; Brazil 1991; Kanouchi & Abe 1998; Iozawa 2000; Onishi 2000; OSJ 2000). Especially during the 1990s, however, the raven has become a locally common

species in certain areas wintering from as early as November until as late as May (Brazil pers. obs.). This subspecies breeds in Siberia, from the Yenisei River and Lake Baikal in the west to the Okhotsk and Pacific coasts of Kamchatka and the Commander Islands in the east, and south as far as Sakhalin and the Kurile Islands. The birds reaching Hokkaido in winter are presumed to be of this subspecies and to migrate from adjacent areas in the Okhotsk Sea region, perhaps from as far away as Kamchatka.

Two areas where Common Ravens may now be found commonly in winter in Japan are the well forested, mountainous, Akan National Park (NP) in central eastern Hokkaido, and the equally mountainous Shiretoko Peninsula of extreme northeast Hokkaido. There, increasing numbers of ravens have facilitated recent behavioural observations (including those of play) that would not have been possible in the past when they were scarcer.

Gwinner (1964) described captive ravens repeatedly sliding down an inclined shiny board, and Ratcliffe (1997) described wild ravens as playing or rolling over in snow 'like a dog.' Ravens have also been observed sliding down steep snow-covered roofs in Alaska and northern Canada (Heinrich & Smolker 1998), sliding on their backs down snow-slopes in Maine, USA, and in Britain (Moffett 1984; Heinrich & Smolker 1998), and as sliding on their breasts in Maine (Heinrich 1990), while Kilham (1989, in Ratcliffe 1997) apparently kept a tame raven that enjoyed sliding on its side and rolling.

Fieldwork in the Akan NP since May 1998 (study in progress) has enabled me to observe a large number of ravens on numerous occasions and exhibiting a wide range of behaviours including communal gatherings, aerial displays, and apparent courtship. A considerable amount of raven flight behaviour appears playful and this can commonly be seen in Hokkaido during winter. On three occasions only, however, have I been fortunate enough to observe ravens in Hokkaido engaging in other forms of what can only

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be described as play behaviour. The most interesting of these involved sliding and rolling in snow—“snow-romping” (Ratcliffe 1997).

## OBSERVATIONS

### 1) Observation one

On the morning of 8 February 2000, in clear sunny conditions ten ravens, apparently four pairs and two singles, as judged from their behaviour and their calls, were engaging in aerial chases, displays, and calling activity, both in the air and from among the rocks on the upper slopes of Atosanupuri (Io-san) and Makuwanchisappu (Kawayu 43°37'N; 144°25'E). At the time the temperature had warmed to approximately  $-5^{\circ}\text{C}$  and the ground was covered with fresh powder snow, which was deep on the lower flanks of the mountains.

At approximately 10:45, I located two ravens on a steep slope on the lower eastern flank of Makuwanchisappu where the low Japanese Stone Pine *Pinus pumila* forest was buried in snow leaving an open snow slope. These two individuals were engaged in behaviour I have not observed in Japan before. One of them, after landing in the snow, lay on its breast and slid head forwards downhill in the snow on its breast, apparently ‘sledging.’ Its partner, nearby, began by lying sideways to the slope and rolled over and over downhill. The pair continued ‘sledging’ and rolling downhill for more than ten metres before flying back upslope. This they did repeatedly. Less than five minutes later I noticed a second pair also engaged in such apparent play behaviour. One member of this pair was fluttering in deep powder snow as if bathing, while its partner was rolling sideways down the slope nearby in the same way as one of the members of the first pair. As this bird rolled over repeatedly on to its back I was very clearly able to see its legs in the air, its wings flicking in the snow each time, before it rolled over upright again. A third pair nearby was also engaged in similar behaviour; one member was rolling sideways down the slope in the snow when first seen, but was quickly joined by its apparent partner, which landed on it, sat down on it, and remained in that position for at least a minute. Meanwhile one member of the first pair was still sliding headfirst down the slope. The three pairs were engaged almost simultaneously in play behaviour in the snow.

Rolling by the ravens disturbed the powdered snow in an erratic manner; however, ‘sledging’ left clear

linear tracks in the snow. When I scanned the entire eastern flank of Makuwanchisappu I was able to recognise the distinctive tracks, disturbing the otherwise smooth snow, where ravens had played in more than ten different places indicating that they had been playing for some time before I first noticed them.

### 2) Observation two

On the afternoon of 9 February 2002, in heavily falling snow, I observed a group of 14 ravens in trees close to a deer carcass near Kanayama Bridge, Shiretoko Peninsula. Amongst the group several pairs were sitting in close proximity to each other (less than one metre apart), one such pair was engaged in allopreening. Meanwhile, at 14:20, a single individual began pecking at the branch it stood on. After a few moments, it slipped into a hanging position beneath the branch, holding on with both feet. While upside down beneath the branch it let go with one foot, holding on with the other. It then grasped the branch in its beak and let go with both feet so that it hung beneath the branch holding on only with its bill. Finally after a few tugging motions, as if attempting to break the branch using its weight, while hanging by its bill, it flew off.

### 3) Observation Three

On the afternoon of 10 February 2002, in clear bright weather at Mashu-ko, Akan NP, I observed a group of 15 ravens engaged in aerial chases and aerobatics. At 14:19 I noticed one individual landing on the snow slope on the inner rim of the Mashu-ko crater. It proceeded to peck out a large chunk of snow crust (larger than its head), which it picked up in its beak and flew off with. It was immediately chased by another individual, but after circling for approximately one minute it returned to the same part of the slope and dropped the chunk of snow. Approximately five minutes later, another, or the same pair, engaged in the same sequence of behaviours—pecking out snow crust, carrying it into the air, pursuit, then dropping the snow crust back on the slope.

I also observed one pair engaging in an unusually extreme form of aerial play that I have not found described in the literature. Amongst a group of 32 birds, many of which were engaged in aerial pursuits, paired flights, swoops, stalls, and rolling displays, two individuals flew towards each other, grasped each other by their beaks and descended slowly with their wings and tails spread like two black parachutes. After several seconds they disengaged and

flew off separately.

## DISCUSSION

Heinrich and Smolker (1998) in their review of play in Common Ravens concluded that because ravens maintain long-term monogamous pair bonds, “successful competition in the mate-choice arena is absolutely critical to lifetime reproduction.” Behaviours that appear playful may in fact represent “showing-off” behaviour to other individuals, as status enhancing displays of critical importance in establishing mateships. Heinrich and Smolker (1998) describe various aspects of apparent aerial play that even the most casual observer of ravens is also likely to note. Heinrich and Smolker (1998) also describe ravens hanging upside down from branches, ropes, and power lines, and playing games that involve passing or catching objects in the air.

Although play behaviour, and particularly aerial play, hanging, and ‘snow-romping’ by ravens, has been described by several authors from Europe and North America (e.g. Gwinner 1964; Moffett 1984; Heinrich 1990; Ratcliffe 1997; Heinrich & Smolker 1998), none of these behaviours appear to have been reported from Japan before. Other species of crows have, however, been observed playing in Japan, in particular the Carrion Crow *Corvus corone*. For example, in the late 1980s Mitsuhiro Kanazawa observed two Carrion Crows sliding on solar panels in Takasaki, Gunma Prefecture. In this case the birds slid standing up with their wings partly spread (Karasawa 1992). Carrion Crows have also been seen and photographed sliding down a children’s slide in a park in Shinnanyo-shi, Yamaguchi Prefecture; in this instance standing, and on its side, with its wings closed (Karasawa 1996).

These observations from the Akan NP and the Shiretoko Peninsula, Hokkaido, appear to represent the first time that such play behaviours have been observed among Common Ravens in Asia, and the first time anywhere that pairs have been reported ‘sledding’ and ‘rolling’ together, and parachuting together.

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