

# **Techniques for Introducing Animals to Multi-Species Bird/Ungulate Habitats at Disney's Animal Kingdom Lodge**

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## **Introduction**

Disney's Animal Kingdom Lodge® (DAK Lodge) is an African lodge-style resort adjacent to Disney's Animal Kingdom® theme park at Walt Disney World®. Guests of DAK Lodge have the unique opportunity to observe exotic animals in a natural setting from the private balconies of their hotel rooms, from special viewing areas, and from picture windows in the hallways throughout the resort. In all, there are 46 acres of animal habitat at DAK Lodge that are broken down into four separate multi-species savannas. The collection of animals consists primarily of African ungulates and birds. In total, the resort is home to 17 species of African ungulates and 17 species of African birds in multi-species habitats. Multi-species bird/ungulate habitat management is our primary focus. At DAK Lodge we use a holistic approach to managing birds and ungulates in our four multi-species habitats. All keepers care for both birds and ungulates and all management decisions are made considering the needs of all taxa. Much of our ability to manage diverse multi-species bird/ungulate habitats at DAK Lodge comes from having a structured process for introducing new animals to these habitats.

## **Species Selection, Individual Animal/Group Selection, and Acquisition**

When considering adding a new species to our multi-species habitats at DAK Lodge, we first determine what the parameters of the habitat and holding areas are, what species may work in this setting, and what species may mix well with one another within these parameters. Once we have some ideas around what species may and may not work, it is time to do our research. Our first step is reviewing the various avian and ungulate Taxon Advisory Group (TAG) Regional Collection Plans (RCPs) and Species Survival Plans (SSPs) for guidance. This helps us determine what species are priorities and in need of new institutional participation to assist in achieving sustainability. This narrows our focus to a few species and we can then begin talking with others in the field with experience with these species including SSP coordinators, studbook keepers, and other institutions currently working with these species. There are several questions that need to be asked: Have these species ever been kept in multi-species habitats before? If so, then, with what, and were there any problems? If this species has not been kept in a multi-species bird/ungulate habitat before, then why not? Is there something about this species that does not make it a good candidate for living in a multi-species habitat or is it just that no one has done this before? Is this species similar to other species that have been kept in multi-species habitats before?

Once we have narrowed down what species we plan on adding, we have a few more questions we need to answer: Do we plan on breeding this species or keeping them in a single-sex group of just males or females? This too is determined after having conversations with SSP coordinators, studbook keepers, and animal managers currently working with these species to determine what is available, what is the best thing to do for the populations, and what groupings will work best within our parameters.

Now that we have all of these answers, we need to begin the process of acquiring animals. When doing so, it is very important to ask the institution or institutions with available animals some questions, e.g., what sort of temperament do these individuals have? What is their dynamic within their current group/habitat? Are they flighty, aggressive, hand-raised, parent-raised, etc.? Are they in a smaller zoo habitat or larger, more open range setting? Do they regularly shift off exhibit? Are they trained for husbandry behaviors on a regular basis? Are these animals valuable to the breeding population of this species? All of this helps us determine if the right animals are available of the chosen species to set ourselves up for success. If it is determined that the only available individuals



of this species would not be a good fit for our multi-species habitat management, then it may be necessary for us to look at acquiring a different species entirely or to wait until the right individuals are available. Although generally a species may seem well-suited for multi-species bird/ungulate habitats, problematic *individuals* of this species may not succeed. Whenever possible, we typically have a “plan B” for what we will do if the new animals do not work out in our designated habitat. This secondary plan often includes alternate habitats, moving other species or individuals currently in the habitat to other habitats, off-exhibit holding areas, or placement of animals to other institutions.

An example utilizing this process at DAK Lodge could be seen during our recent addition of 3.0 Somali wild ass (*Equus asinus somalicus*). We were interested in adding another large ungulate to one of our multi-species bird/ungulate habitats and had considered zebras. While attending the various Ungulate TAG meetings in 2012, we learned that Somali wild ass was a red SSP that was in need of additional institutional support. We were able to talk with the SSP coordinator and a few animal managers at institutions that were also working with the species. Through these conversations we found that there were little to no occasions in which this species had been housed in multi-species habitats before, but there didn’t seem to be a strong reason as to why they were not. At DAK Lodge we had experience working with Grant’s zebra (*Equus grantii*) and Hartmann’s mountain zebra (*Equus zebra hartmannae*) in multi-species habitats and thought that this was a good foundation for trying to manage Somali wild ass in a similar way. A young bachelor group of animals was identified by the SSP coordinator as available and after talking with the animal care manager at that institution we determined that these animals would be good candidates for our management style. We were able to acquire the animals, successfully introduce them to this bird/ungulate multi-species habitat, and we are happy to say that they are doing well in this setting where they live alongside of five species of birds and six other species of ungulates. Through this process we were able to add an exciting new species to our collection and assist a red SSP in furthering its goals towards sustainability.



Somali wild ass in acclimation pen meeting the scimitar-horned oryx for the first time.

*Photo by Steve Metzler*

### **Planning For and Introducing New Animals to Multi-Species Habitats**

Once the animals have been identified, their histories are known, and it is determined when they will arrive and be available for introduction to the habitat, we sit down with all stakeholders to discuss and plan the process for introducing these new animals to the multi-species habitats. Typically this group includes a curator, zoological managers, and animal keepers. This allows us to discuss timelines, identify any modifications to the existing animal holdings or habitats that will need to take place, and begin to plan the details of the introductions. At this time we identify a core group that will be responsible for the continued planning, communication, execution of the plan, and keeping the team on task. That core group usually includes a zoological manager and a subset of the animal keeper team.



Over the years we've done several introductions of new species to our habitats. We've also introduced new individuals to existing groups, and trained those animals to come into their new off-exhibit holding areas. Each situation is treated a little differently, but we do have a general process which has proved successful. We start by bringing new animals to the off-exhibit holding area that will be the area we will shift them into on a daily basis. We hold them in that area for one to two weeks so they can become familiar and comfortable with this location. We then will give the new animals a "howdy", or visual access, to all of the other animals in that habitat. Our preferred method to howdy animals to their new habitat is to build a temporary pen from the off-exhibit holding area and into the multi-species habitat. For this we use chain link fence panels. The chain link fence panels are the type commonly used to enclose construction sites, control crowd flow at events, etc. The chain link fence panels we use are six feet high and 10-12' wide and are held up with stanchions that the panels slide over. We will then typically zip-tie or wire-tie the tops to add further stability and depending on the species, also reinforce with wooden stakes driven into the ground.

When we are using these for larger birds that may try to jump, we extend the height to eight feet by using fans of wire that spread out on top, to prevent the birds from jumping on or over them. We have had these panels painted a disappearing green so that they blend in with our existing fence lines and do not stand out when they are used in guest view. We refer to this temporary fence panel pen as an acclimation pen. During this time, aggression levels and behaviors of both the new animals in the pen and the other species in the habitat are monitored closely. We will also bait other species to the area of the acclimation pen in order to force close proximity and potential interactions. This allows us to gauge the interest and aggression levels. When we see little interest, we will often move to full introductions rather quickly. If we see a lot of curiosity or aggression, we prolong this howdy period until these behaviors decrease or cease altogether before moving to the full introduction.

When introducing an entirely new species, this process is done more slowly and carefully than when introducing a new animal to an existing group. When introducing the red river hogs (*Potamochoerus porcus*) to our multi-species habitats, this process has taken up to a month or more. The hogs were a considerably different type of animal than what many of the other species had seen before. Many of the animals were much more interested in and apprehensive around the hogs than they had been with other ungulate or bird species.

Once the initial "howdy" process is over and we have reformulated our plans based on the observations during this period, it is time to begin introducing the new animals to the habitat. Whenever possible, we give the new animals some time to explore the new habitat on their own, without the complications



Red river hog in acclimation pen meeting Abyssinian ground hornbill for the first time.

*Photo by Steve Metzler*



of the other species, so they can learn their boundaries, and so they feel more comfortable in those surroundings. Next, we begin to gradually introduce other animals to the habitat. We choose an order of species and individual introduction based on their previous behaviors and we will hold off higher risk introductions until the new animals are established and comfortable in their surroundings. Choosing the order of these introductions comes from those previously mentioned meetings of all of the stakeholders, and particularly from the animal keepers' and zoological managers' experience and knowledge of their animals. We do not proceed to add other species until we are comfortable with how things are going with each new introduction. We typically pull dominant, more aggressive animals out of their habitat for a little while to allow the new animals to get established first before reintroducing them to the habitat. At all times, animal keepers are present and ready to intervene if introductions appear to be seriously threatening the health and well-being of any of the animals involved. We have found it very important to define when we will and will not intervene, and assign a point-person, typically a zoological manager to make this decision. This is important because there is a dominance hierarchy that needs to be worked out between species and individuals, and it is important to allow this to happen.

At DAK Lodge we recently had this discussion around moving 3.0 spur-winged geese (*Plectropterus gambensis*) that were hatched in an off-exhibit area and will soon be old enough to move out to one of the multi-species bird/ungulate habitats. The assistant curator and zoological managers had a meeting to discuss which of the four habitats we have available would be most appropriate. After discussing the challenges and concerns around each of them we decided on one. Some of the animal keepers were then included in the discussion and came up with a rough timeline and action items that would need to be taken care of before we could move them over. Some of the concerns were around the current residents of this habitat and how they may react to the geese, especially considering that the geese would be the smallest animals in this habitat once added. Some of the other primary species of concern in regards to the geese are the 3.0 marabou storks (*Leptoptilos crumeniferus*), as we have seen them show occasional aggression towards some of the native waterfowl that visit the habitat. There was also some concern expressed around some of the larger ungulates in this habitat like zebra. We determined that the best course of action would be to plan on constructing a temporary acclimation pen for the geese surrounding one of our small pools in the savanna. This will give the geese time to become adjusted to the area so they will see this as a home base and hopefully limit their movement around the habitat beyond that. Also, this will allow all of the other animals to see the geese for a while and desensitize to their presence before they have full access to them. We will be able to gauge the aggression level of the marabou storks and other species to determine when it is safe to move towards the full introduction.

### **Maintaining Successful Multi-Species Bird/Ungulate Habitats Long Term**

At DAK Lodge, our ability to recall and shift animals out of the habitats may be the most valuable management tool at our disposal. Each day, at a consistent time, all of the ungulate species and many of the bird species are brought into the holding areas to be separated into their appropriate feeding groups and given their diets. Groups of animals of the same species are brought into the same locations and then separated from each other when necessary. For example, male individuals of ungulate breeding groups are typically separated from the females in holding as they tend to be more aggressive in small spaces and may harass females. This practice allows us to perform species specific husbandry i.e., feeding or restraint, in an area that is separate from the multi-species habitats and eliminates the complications that may be caused by other species. Having the habitats clear of ungulate species for 2-4 hours per day also allows animal keepers to attend to any of the bird species that are not brought into holding areas on a daily basis such as the flamingos and cranes. In an effort to avoid conflict, we attempt to shift smaller mammals and birds in one of two different ways: We may bring them in at a different time, or they may enter into a holding space located far from the larger ungulates.

Observation, communication, and adjustment are constant necessities when confronting the challenges and changes of a multi-species bird/ungulate habitat. It also requires a great deal of





Red river hogs, nyala, Abyssinian ground hornbill, blue crane, and wattled crane in multi-species habitat. Photo by Lindsey Kirkman

commitment and a determination to see the animals succeed.

## Conclusion

Since the opening of Disney's Animal Kingdom Lodge in 2001, we have learned a great deal about managing multi-species bird/ungulate habitats. It has been extremely demanding yet rewarding. For many reasons though, all of the hard work is well worth it. Through continuing to expand the diversity of our collection, we have increased the number of species' populations we have been able to support and perhaps inspired other institutions to do the same. As animal care professionals we have been able to broaden our knowledge and experience. Our guests have greatly enjoyed watching and learning about our varied and dynamic mix of species. Most importantly, the animals have benefited from living in these extremely enriching environments.

## Acknowledgements

I would like to thank the entire DAK Lodge Animal Programs team for their continued hard work and commitment to managing dynamic and taxonomically important multi-species habitats for the delight of our guests and the support of a number of SSPs and TAG goals.

Table 1: Species currently being managed in mixed-species bird/ungulate habitats at DAK Lodge

BIRDS	UNGULATES
Ostrich ( <i>Struthio camelus</i> )	Hartmann's mountain zebra ( <i>Equus zebra hartmannae</i> )
Marabou stork ( <i>Leptoptilos crumeniferus</i> )	Grant's zebra ( <i>Equus burchelli</i> )
Pink-backed pelican ( <i>Pelecanus rufescens</i> )	Somali wild ass ( <i>Equus asinus somalicus</i> )
African greater flamingo ( <i>Phoenicopterus roseus</i> )	Giraffe ( <i>Giraffa camelopardalis</i> )
African spoonbill ( <i>Platalea alba</i> )	Okapi ( <i>Okapia johnstoni</i> )
Spur-winged goose ( <i>Plectropterus gambensis</i> )	Common eland ( <i>Taurotragus oryx</i> )
Egyptian goose ( <i>Alopochen aegyptiacus</i> )	Lowland nyala ( <i>Tragelaphus angasii</i> )
South African shelduck ( <i>Tadorna cana</i> )	Sable antelope ( <i>Hippotragus niger</i> )
Common shelduck ( <i>Tadorna tadorna</i> )	Roan antelope ( <i>Hippotragus equinus</i> )
East African crowned crane ( <i>Balearica regulorum gibbericeps</i> )	Scimitar-horned oryx ( <i>Oryx dammah</i> )
Blue crane ( <i>Anthropoides paradise</i> )	Common waterbuck ( <i>Kobus ellipsiprymnus</i> )
Abyssinian ground hornbill ( <i>Bucorvus abyssinicus</i> )	Wildebeest ( <i>Connochaetes taurinus taurinus</i> )
Ruppell's griffon vulture ( <i>Gyps rueppellii</i> )	Bontebok ( <i>Damaliscus pygargus pygargus</i> )
Lappet-faced vulture ( <i>Torgos tracheliotus</i> )	Impala ( <i>Aepyceros melampus</i> )
Kenya crested guineafowl ( <i>Guttera puncherani</i> )	Thomson's gazelle ( <i>Eudorcas thomsonii</i> )
Reichenow guineafowl ( <i>Numida meleagris</i> )	Ankole cattle ( <i>Bos taurus taurus ankole</i> )
Helmeted guineafowl ( <i>Numida galliformes</i> )	Red river hog ( <i>Potamochoerus porcus</i> )





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