Training Detection Dogs for Research and Conservation of Tortoises and Freshwater Turtles in Southeast Asia

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Historically, dogs (*Canis lupus familiaris*) have been used to hunt many taxa, from elephants and lions to birds and, yes — turtles. The well evolved olfactory system in dogs allows for much greater sensitivity in detecting and distinguishing a wide variety of odors than our own (MacKay et al., 2008). This fact means that in the hands of a proficient hunter, man's best friend could be considered the worst enemy of many turtle species, especially terrestrial ones that are most vulnerable to detection by hunting dogs. In Southeast Asia, dogs have long been used for hunting. For example, in Vietnam, dogs will often follow their owners into the forest, individually or in packs. With a natural hunting instinct, they follow a lead dog and chase wild pigs, deer, squirrels, civets, or almost anything they see. They either catch, corner, or chase their prey until it is exhausted, which allows the hunters to pick off the animals with a stick, knife, gun, or crossbow. If they encounter turtles, their barking, scratching, and biting quickly alerts the hunters to an easy catch.

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A local hunting dog in northern Vietnam, with an Indochinese Box Turtle.

During interviews with Vietnamese hunters, they often reminisce about the hunting heyday. In the 1980's, when turtles and other wildlife were abundant in the forests and the Asian Turtle Crisis was just emerging, they would take their dogs into the forest with three or four friends. The turtles were so common and the dogs would find so many that additional friends were brought along to carry out rice sacs full of turtles that they collected in a matter of days. Today, some terrestrial species (the ones most vulnerable to dogs) have all but disappeared, especially those with a high commercial value such as the Chinese Three-striped Box Turtle (*Cuora trifaciata*) and the Indochinese Box Turtle (*C. galbinifrons*) (Spinks and Shaffer, 2007). Because of this decline, the number of dedicated turtle hunters has dwindled and, instead, hunters take dogs into the forest to catch anything they can. If they find a single turtle per day, they are doing

well; some weeks they find none. Such reduced turtle populations pose a serious challenge for researchers, as surveys are sometimes exhausting and demoralizing. Increasingly, graduates from the university, who have studied forestry or a biological science, are interested in the conservation and research of the 25 species of native chelonians. More turtle-focused fieldwork is being conducted in Vietnam each year, which is helping to increase our knowledge of these animals and is promoting conservation. For aquatic species, non-lethal trapping is possible and requires little effort other than setting, baiting, and checking traps. For terrestrial turtles, pit-fall traps and drift fences can work, but they require time for construction and a placement in good locations to be successful. Time search, walking line transects, or covering grid squares has proved successful, but these require extensive man hours. One example is the survey work performed on the Keeled Box Turtle (*Cuora mouhotii*) at Cuc Phuong National Park, in Ninh Binh Province. During a two year study, in 2008 and 2009, time search was conducted in an area where radio-tracking studies on this cryptic species had already identified a sizable population in good habitat. Despite selecting the best seasons of the year for encountering active turtles, the capture rate was only 0.029 turtles per man hour (H. Van Ha and T. McCormack, unpublished). Because such efforts are required, its not surprising that some researchers have opted to use hunters and local dogs to form a more efficient team, and to lower the costs. But the risks associated with this method are often overlooked, as local dogs are difficult to control, especially if they run in packs, and then there's the risk they might kill other wildlife. Hunters finding valuable species of turtles, pangolins (*Manis* sp.), or other species could potentially chose those animals over payment for work. Also, if good populations are identified, the hunters will come back when the research team or Forest Protection Department (FPD) is not present.

Because of the need for greater efficiency in surveying Critically Endangered species such as the Indochinese Box Turtles (*Cuora bourreti*, *C. galbinifrons*, and *C. picturata*; see Stuart and Parham, 2004), for which their distribution and occurrence in many protected areas remains unclear, we decided to utilize the incredible olfactory sense of dogs. Their sense can be trained to detect a wide variety of items, from finding drugs and explosives to invasive ant species, and even whale scat or mobile phones in private schools (Smith et al., 2003; Rolland et al., 2007; Parker and Hurt, 2010). With a detection accuracy greater than experienced by humans, dogs have been used in wildlife conservation for over 100 years (Smith et al., 2003; Parker and Hurt, 2010). The Asian Turtle Program (ATP) at the Cleveland Metroparks Zoo, in cooperation with the Centre for Resources and Environmental Studies (CRES), organized training with the Barking Mad Dog Training School (BMDTS) to professionally train the dogs to allow for a safer, more efficiently controlled, and the use of a scientific approach in conducting turtle surveys. Surveys on Desert Tortoises (*Gopherus agassizii*) have shown much greater efficiency when performed by teams using dogs, especially in thick undergrowth (Nussear et al., 2008).

Rather than importing popular breeds, such as Labradors, or pre-trained dogs, however, we selected six local dogs, all without prior training. Two were a special breed known as Phu Quoc dogs, from a small island in southern Vietnam, renowned for their hunting capabilities and agility. Some came

Left: A *Cuora mouhoti* at Cuc Phuong National Park, Vietnam. **Right:** Searching for turtles without dogs requires large teams, long hours, and hard work. Pictured here is the team assembled to search for *Cuora mouhoti*.

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from local villages where they were destined for the dinner table, since dog meat is considered a speciality dish in Vietnam and eaten at the end of the lunar month. Local dogs were selected, as these were already acclimatised and adapted to life in a tropical environment, as well as a local diet that some imported dogs have struggled with. Using local dogs also reduced the significant cost of purchasing and transporting animals and, from a welfare standpoint, this decision rescued these animals and presented an opportunity to show that all dogs have an ability to be trained.

In May of 2010, we held a two week intensive training course for the dogs and their six handlers. The course was conducted by Richard Clarke, the director of training for BMDTS, and four qualified volunteer trainers from the United Kingdom with decades of combined experience in training drug, explosive, and security dogs, as well as tiger scat detection dogs. Training was held in Cuc Phuong National Park, where animals from the Turtle Conservation Center (TCC) were used to introduce turtles scents to the dogs. For some of the dogs that were raised in the urban sprawl of Hanoi, it was their first experience in forest.

Training started with basic handling, care, and grooming, and rapidly progressed to basic obedience and encouragement in their search for turtle scents, which was accomplished by using cloth bags scented with the desired turtle species, with meat treats inside the bags. Gradually, over the weeks, the treats were removed and eventually we used live turtles in small cages, and harnessed the dogs so they could work on long lines. As the dog training progressed the harnesses were removed, which allowed them greater movement through the thick undergrowth.

Indications of success varied with each dog, as some would bark and bite at the turtles but others were more passive, sniffing or showing excitement when they detected them. Although the dogs displayed different strengths and weaknesses, after only two weeks each was able to locate and indicate the presence of four concealed animals within a 25m^2 grid square.

Following the course, additional training will focus on the dogs' fitness and scent-building capacity, to prepare the them for summer surveys in northern and central Vietnam. Field testing the team to gain practical experience for both the handlers and hounds will be important for their development through 2010. By 2011, therefore, a more experienced team will be conducting fieldwork in Vietnam, which will greatly reduce the risk to wild turtles and the duties will be performed with more scientific methodology. We also would like to diversify our agenda by using the dogs in enforcement activities. The dogs can be used by the FPD and the environmental police to check buses and trains along major trade routes in Vietnam and China for illegal wildlife, since shipments often contain turtles.

Local dogs trained to hunt for turtles.

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