

# The Use of Portable Construction Kits in Off-Exhibit Holding of Pallas' Cats (*Otocolobus manul*)

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Different reasons, such as quarantine when the enclosure has to be easily cleaned and disinfected, sometimes require that animals should be kept in downgraded conditions. Such animals are affected by extreme boredom and lack of physical activity. We have developed special portable constructions for temporary and quarantine facilities, where the installation of permanent species-specific enrichment devices would not be appropriate (though these kits can also be used in the permanent enclosures). These constructions consist of wooden parts of different shape, which can be assembled as a whole or partial construction, similar to children's construction kits (Fig. 1). One keeper can easily change the configuration fitting it to the individual animal's requirements and easily clean and disinfect the parts. These devices increase the space used by the animals, improve comfort, and bring some novelty without causing stress in the animals. When an animal is moved to any temporary cage, placing their familiar construction in it can ease the stress.



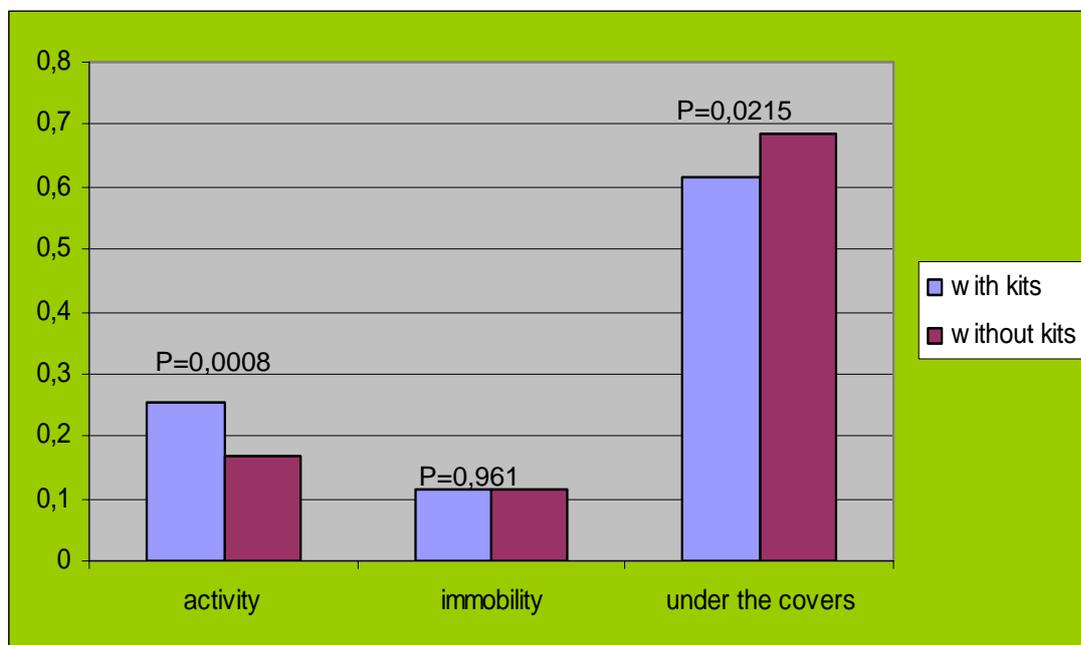
*Figure 1. The Portable Construction Kits.*

The devices were used for the Pallas' cats that were kept in off-exhibit cages. In order to avoid potential stress, we brought separate parts into the cages gradually, providing the cats with the opportunity to adapt to the new elements of their environment, and assembled the parts of the construction after the animals were used to them. Sometimes we changed the configuration of the constructions,

or alternated the parts between different cages. The keepers reported that the Pallas' cats became more active when they used the new enrichment devices. To study this effect in detail, we analyzed the round-the-clock distant videotape of one male's activity. The subjects of our investigation were two five-day periods, the first in June 2006, when there were no portable constructions available, and the second one, in June 2007, in the presence of the enrichment device. The animal's activities were registered every fifteen minutes, totaling 500 registrations in 2006 and 481 registrations in 2007. The average duration of a sequence of behavior in a Pallas' cat is shorter than 15 minutes, so we could consider our samples as independent ones.

We used the two-sided difference test between two proportions (Statistica 6.0) to compare the rates of the cat's activities.

When the animal used our enrichment devices, it was more active and spent less time under the shelter, while its whole time of immobility (standing, sitting and lying) was the same (Fig. 2).

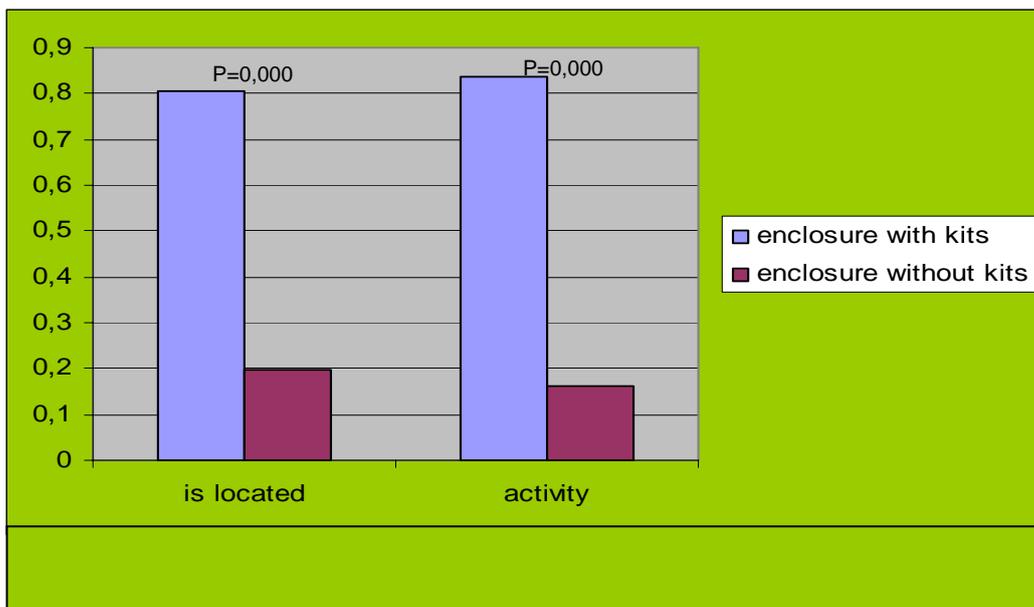


**Figure 2. The influence of the kits on male Pallas' cat' behavior.**

In 2007, when given a choice, the cat preferred to be in the enclosure that contained the enrichment device (Fig. 3).

To prolong the periods of foraging activities, the keepers used to hide some food items inside the construction. Such feeding methods stimulated playing and exploring activity; the prey was not eaten at once, but the animal tended to replace it many times, "hunted" it, and played with it. After all the food items were found and eaten, the cat repeatedly looked for more food in various parts of the construction. This picture was quite different from the Pallas' cats' behavior when they had all the food in one place. In those cases, all the food was eaten at once and no playing or exploratory activities were observed.

The constructions provided the animals with additional shelters, which



***Figure 3. Cat's preference of enclosure with kits.***

prevented conflicts between cagemates when they were kept in pairs.

So the use of the described portable constructions undoubtedly proved to stimulate physical activity and exploratory behavior and simultaneously made the animals feel more safe and confident.

The history of our Portable Construction Kits is not so long, their construction is still being improved, and the methods of their application are being developed further. These methods and shapes can vary greatly according to the needs and requirements of specific animals, layout of enclosures or the keepers' imagination, but we hope that the general idea of "children's construction kits" may be quite useful for environmental enrichment in zoos.

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