

A homemade stretcher for ungulate transport

Camilla para transporte de ungulados

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Wildlife researchers are commonly required to deal with animal transport for research and management purposes (Friend *et al.* 1994). Inappropriate loading and transport can often result in the animal suffering additional stress and fear, with the potential for long and short term negative impacts on the well-being of the transported individuals (Swart *et al.* 2004, Lindsjö *et al.* 2016). However, despite this common requirement, little research and practical information exist about the specific handling, equipment and transportation requirements for many of our wildlife species (la Grange 2006). Medium and large mammals (e.g., ungulates and carnivores) are often transported using culver boxes or wooden crates (la Grange 2006). Though these devices are excellent to keep the animals secure and in darkened settings, they are heavy and voluminous requiring vehicles for their transportation. An alternative approach for transporting large mammals is to use stretchers, which present a more comfortable and safe transit, in particular for short distances. The use of stretchers is common for marine mammals since it assures their horizontal position (Joseph *et al.* 1990), but little use is seen for terrestrial mammals with few

published examples (Boulanger & Curtis 2016).

In this communication, we describe the use of a homemade, low cost and efficient stretcher for red deer (*Cervus elaphus* Linnaeus, 1758) transport to minimise the risk of workplace related injuries, when transporting the mammals, and the likelihood of bone fractures, joint dislocations, or lacerations to the transported individuals themselves.

To construct the stretcher a sturdy raffia sack with dimensions of 80 x 80 x 90 cm is required (Fig. 1A). In addition, two hollow galvanised metal tubes measuring 200 cm long and 4 cm thick (Fig.

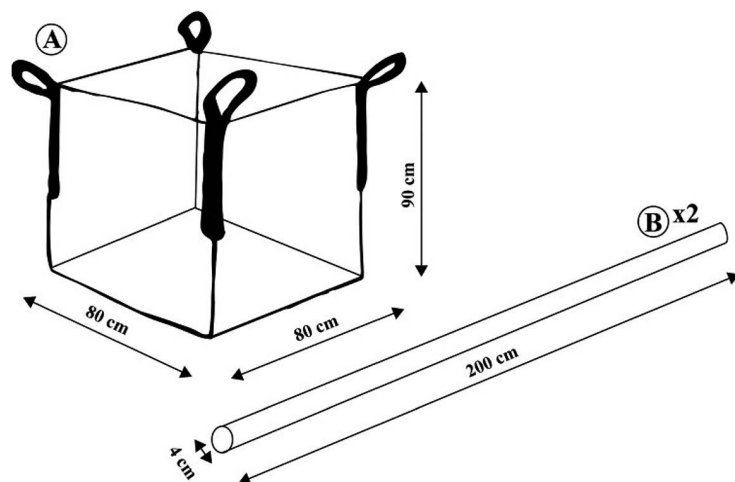


Figure 1. Materials and required dimensions to build the stretcher. A) Raffia sack. B) Two hollow galvanized tubes.

1B) complete the list of materials. These materials are low-budget and can be easily sourced from shopping centres specialised in building materials. The huge range of sack sizes available “off the shelf” allows the adaptation of the stretcher to transport a variety of sized species.

Pictogram Instructions. The step-by-step setup process is as follows: firstly, a set of 4 holes of 8 to 10 cm in diameter is made in the area located below the sack handles’ reinforced seams; or, in the scenario of working with a different-sized sack, the holes can be made 30 cm above each sack’s lower corner (Fig. 2A). Each sack’s handle is then bent towards the inner part of the sack, and pulled out of the newly made hole, located below the handle’s side, to obtain a C-shape bend (Fig. 2B). In the case of a larger handling force being required, this operation can be conducted again to reinforce the

handles. The handles are then tightened by pulling them outwards (Fig. 2C). Finally, both tubes are fed

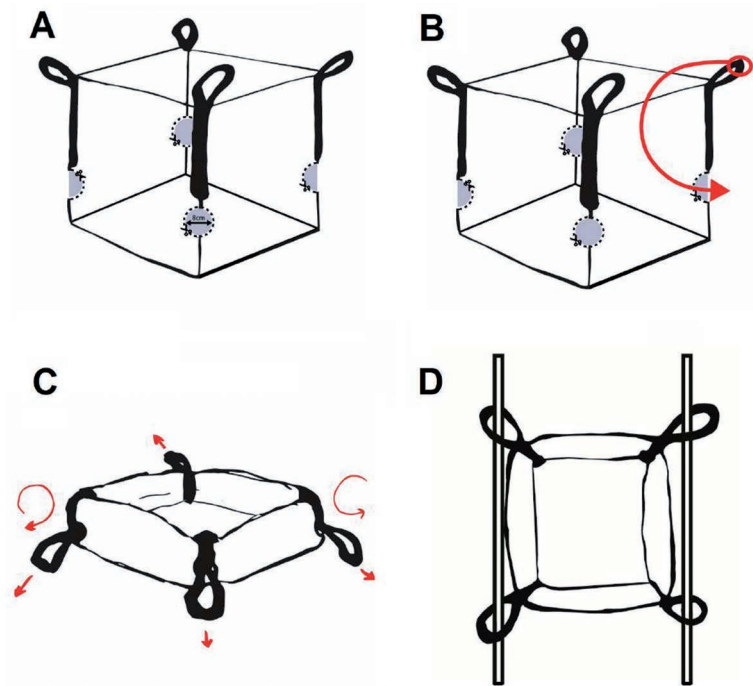


Figure 2. Setup scheme for the stretcher.



Figure 3. Red deer transportation from the weighing setup location to the sampling area using the homemade stretcher.

through the handles so that they are parallel to one another (Fig. 2D).

The result of this methodology is a basket that securely embraces the animal, allowing for its transportation in a physiologically friendly position, which supports the animal's head and limbs. The time invested to set up the stretcher is minimal with an effective structure ready for use in approximately five minutes. Although the used materials can hold up to 1,000 kg, this stretcher model is ideal to move sedated wild animals that, due to their size, require two to four operators/technicians to securely carry them.

In the case of our research, we successfully transported forty red deer females weighing between 45 and 96 kg over a range of distances, including hundreds of meters, without injuries to the workers or animals. Moreover, no damage to the sack structure was observed given the weight-bearing potential of the sacks and the described design. From its successful operation, this low-cost and animal-friendly stretcher would present a highly suitable methodology for transporting red deer, in addition to other heavy ungulates (e.g., fallow deer *Dama dama* (Linnaeus, 1758) and wild boar *Sus scrofa* Linnaeus, 1758). Where weights are appropriate, smaller species (roe deer *Capreolus capreolus* (Linnaeus, 1758) and chamois *Rupicapra rupicapra* (Linnaeus, 1758) can also be transported effectively by only two people using this design, saving time and resources.

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