

# Reusable Wraps for the Prevention of Pressure Lesions in Aquatic Birds Housed Out of Water

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## Introduction

✦ Because of resource limitations during a spill response, birds that require individual care, such as those with pressure lesions, may not be treatable. Applying preventative wraps to aquatic birds housed out of water is essential for preventing pressure lesions and improving the success of rehabilitation. Traditional methods of applying preventative wraps increase waste and require more time and skill to apply. The development of prefabricated reusable preventative wraps can improve our rehabilitation success during wildlife responses.

**Example : Birds documented with pressure lesions during the M/V Cosco Busan oiled wildlife response, 2007**

- ✦ 127 of 1046 (12%) medical records showed documentation of foot and tarsometatarsal injuries
- ✦ 78 (7%) birds had documented keel lesions (J. Masse, Pers. comm.)

## Definitions & Importance

### ✦ Keel lesion

"Keel lesions" are decubital ulcers which occur along the ridge of the keel secondary to abnormal weight placement on the keel. Keel lesions are potentially life threatening in aquatic birds in that the bird's ability to remain waterproof is significantly impaired.

### ✦ Foot/Hock lesions:

Lesions on the lower extremities may occur due to ischemia or abrasion on surfaces. Lesions may become significant enough to cause infection of deeper tissues (tenosynovitis, osteomyelitis) and/or loss of function.



**Examples:** Keel lesion (left), foot lesions (middle), hock lesions (right)

✦ Pelagic birds have many anatomical adaptations to a life spent primarily on the water. The delicate nature of the skin on the plantar surfaces of the feet as well as the caudal position of the legs on the body predispose these birds to pressure lesions in a captive environment.

## Prevention



**Left:** Applying a keel cushion with disposable Vetrap™

**Middle:** Applying prefabricated foot wraps to a Western grebe

**Right:** Clark's grebe with prefabricated reusable keel & foot wraps

### ✦ Preventative wraps

Keel wraps that have been used with success by the Oiled Wildlife Care Network (OWCN) and International Bird Rescue Research Center (IBRRC) consist of a "U" shaped cushion that elevates the keel off the substrate without placing pressure on the keel itself (Goodfriend 1997). The cushion is held in place with a wrap that crosses the body. The wrap is applied in a manner that doesn't impact respiration, defecation, and allows the bird to remain in an upright position. Self-adherent bandage material (such as Vetrap™) has been commonly used (see photo above, left). Abrasions to feet and hocks can be minimized by placing the legs in small "booties" (see photo above, middle). OWCN and IBRRC use 2" cotton stockinette soft stretch bandage, cut to appropriate lengths.

### ✦ Appropriate caging

Providing a substrate upon which the bird can rest will alleviate some of the pressure on the tissue overlying the keel and mitigate the extent of ischemic damage. The OWCN and IBRRC have worked together to develop caging for aquatic birds in which the floor of the cage is made of netting material and sides are made of a non rigid vinyl (see photo above, right) (Ballard 2007, Holcomb). The netting material serves two purposes: 1) providing a forgiving surface on which a bird's keel can rest with decreased pressure, and 2) allowing fecal material to pass away from the bird, minimizing feather contamination.

### ✦ Reducing time spent out of water

Progressing the bird through the rehabilitation process quickly to a state that allows it to be housed in water is the ultimate preventative treatment.

## Prefabricated Reusable Preventative Wraps



- Goals**
- ✦ Decrease waste
  - ✦ Decrease costs
  - ✦ Decrease time
    - Handling
    - Volunteer

**Application Time & Cost Example:** 500 birds in care requiring preventative wraps

| Type of Wrap  | Disposable Bandage Keel Wrap           | Prefabricated Reusable Keel Wrap          |
|---|--|---|
| <b>*Average Application Time</b>  | 36 seconds/ wrap<br>5 hrs./500 wraps   | 17 seconds/wrap<br>2.36 hrs./500 wraps    |
| <b>Daily Keel Wrap Material Cost</b>                                      | \$0.65/ wrap<br>\$325.00/500 wraps/day | One-time fee (dependant on material used) |
| <b>*Average from two separate applicators replicated five times each.</b> |  |   |



**Left:** Volunteers and staff applying preventative keel wraps using Vetrap™ during the M/V Cosco Busan oiled wildlife response, 2007

**Right:** Application of a prefabricated reusable keel wrap to a Clark's grebe

## Conclusions

### **Benefits of Prefabricated Preventative Wraps**

- ✦ Reduces stress to birds by decreasing application time
- ✦ Reduces waste produced by the use of disposable bandage material
- ✦ Reduces volunteer and staff resource requirements
- ✦ Adjustable to the individual bird
- ✦ Easy to apply, even by novice volunteers
- ✦ Ability to prevent pressure lesions with limited resources



Prefabricated reusable keel wrap with attached keel cushion

Prefabricated foot/hock wraps in various sizes for different species

*As a conservation based organization, it is our responsibility to provide "best achievable care" to oiled wildlife while minimizing the environmental impact created by resources consumed and waste generated from our response actions.*

## References

- ✦ Goodfriend, D. A. 1997. *Considerations in Seabird Rehabilitation*. Proceedings of the Annual Conference of the International Wildlife Rehabilitators Council
- ✦ Holcomb, J. G. 1983. *Net-bottom Caging for Waterfowl*, Wildlife Journal 11(1): 3-4.
- ✦ Ballard, D. 2007. *Evolution of the Net-bottom Pen* (poster), Ninth International Effects of Oil on Wildlife conference, Monterey, CA.

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