

# **Guidelines for Transponder Placement and Recording**

Issued by the AZA Institutional Data Management Advisory Group

**(31 Mar 2010)**

## **SUPPORTING INFORMATION**

Accurate identification of individuals is a critical part of providing excellent animal care, and involves all aspects of animal care. Consensus on animal identification systems should involve input from husbandry, medical, records and research staff.

Transponders (microchips, radio frequency identification devices, pit tags) are a useful tool for identifying individuals. Issues related to transponders include the cost of transponders and transponder readers, varieties of transponders and transponder readers, variation in placement of the transponder in the animal, variations in recording data about transponders, and variations in what information is shared between institutions.

All staff should be aware of the different types of transponders and transponder readers. All readers may not be able to read transponders from different manufacturers or different types of transponders. An added complication is that some manufacturers produce encrypted transponders (one example is AVID) which can only be read by a specific reader and may not be read by universal readers. Because specific readers are needed for these encrypted transponders, institutions should carefully consider whether or not an encrypted transponder is necessary for their situation.

## **IMPACT OF STATEMENT**

Use of a single type of transponder system for animal identification in all zoos and aquariums might help resolve some issues related to animal identification (such as costs associated with the use of different systems), but as this is a complex issue with some problems outside the control of the facilities, use of a single system in all zoos and aquariums will take some time to achieve, and may not be practical. However, the use of multiple systems should not preclude institutions from accurately identifying individual animals and sharing this information with other institutions.

Transponder information is not only an essential component of the institution's records, it also assures compliance with regulatory requirements. Many regulatory agencies require the use of permanent identifiers for the species they regulate, some even specifying that transponders be used.

Transponders can be difficult to find with transponder readers, so placement of transponders in standardized locations will facilitate scanning and reading of the transponders. The location and placement of the transponder should be recorded in a standardized manner. The Conservation Breeding Specialist Group (CBSG) has proposed standardized guidelines for placement of transponders, and these guidelines should be used whenever possible. (See Appendix I.)

Both medical (Medical Animal Records Keeping System, MedARKS) and inventory (Animal Records Keeping System, ARKS) records should include complete information about the transponder, including date of placement, transponder number (recorded exactly as displayed on the reader), detailed and standardized location, and manufacturer. Numbers and characters in the identifier number, such as “\*” or “-“ between numbers, should be entered exactly as recorded on the label accompanying the transponder. Information about transponder manufacturers, brands, and placement location should be entered into records using standardized terms and format.

Occasionally, a transponder will no longer be readable, either because it has become deactivated or it cannot be found by the reader, and a second transponder may need to be placed. In these cases, the new transponder must be placed away from the first location but the CBSG guidelines should be followed as closely as possible. The second identifier should be recorded in the same manner as the first, with an additional note as to why the animal received a second transponder. Information about the first transponder should not be deleted; rather, a note should be added to that record regarding the date and circumstances when it could not be read.

The new Zoological Information Management System (ZIMS) will facilitate standardization of records and improve information exchange; however, it is not the only records system zoos and aquariums use currently, or might use in the future. To ensure accurate identification of animals and improved animal care, animal records (both husbandry and medical) should include complete information about transponders (placement date, number / alphanumeric code, location, and manufacturer). When animals are transferred to another institution, the sender must ensure that all of this information is provided to the recipient.

Until all International Species Information System (ISIS) members have transitioned to the newer ZIMS program, the guidelines proposed below deviate slightly from the current data entry standards. Instead of free-text fields, ZIMS will include drop-down lists of locations. Location modifiers (such as right, left, fore, hind) will be available in future ZIMS releases. The location descriptions in these guidelines are intended to follow the CBSG recommendations but reflect the ZIMS locations.

## Summary Guidelines

The following should be recorded for each transponder:

- date of placement
- transponder number / alphanumeric code
  - Record the number EXACTLY as it is written by the manufacturer on the sticker that accompanies each transponder. The number of digits and combination of numerals and letters are inherent to the type of transponder being used. Be wary of transponders with 15-digit numbers, they are typically “clones” and may not be unique.
  - In ARKS, this information is recorded on the Identifiers tab, in the “Identifier” field which appears when ‘Transponder’ is selected from the list of Identifier Types.
- transponder location
  - **All transponders should be placed in the left side of the animal whenever possible.**
  - In ARKS, location is recorded in the “Location” field on the Identifiers tab.
    - Location modifiers such as right, fore, hind, etc. are recorded in the “Note” field attached to the transponder record.
  - The following list of locations has been developed from CBSG recommendations and the current ZIMS list of locations. Use these terms when recording the location.
    - fish
      - over 30 cm in length: fin - dorsal
      - less than 30 cm in length: coelomic cavity
    - amphibians:
      - lymphatic cavity
      - coelomic cavity
    - lizards
      - greater than 12.5 cm snout to vent: body
      - less than 12.5 cm snout to vent: coelomic cavity
    - chelonians:
      - leg socket
      - leg
    - crocodylians:
      - nuchal cluster
      - leg
    - snakes: body

- birds:
    - pectoral muscle
    - thigh
    - except
      - ratites:
        - chicks: pipping muscle
        - adults: cervical area
      - vultures (New World and Old World): cervical area
  - mammals:
    - ear
    - scapular
    - except
      - elephants: tail fold
      - hyrax and loris: lumbar
      - certain carnivores: tail
  - Appendix II contains the list of current ZIMS locations; use these terms when recording alternative placement.
- transponder manufacturer
    - Proper reading of a transponder hinges mostly on knowing what manufacturer produced it. There are three primary manufacturers: Trovan, AVID, and Destron. Trovan is also marketed as InfoPET. Destron may be marketed as Biomark or Home Again, or as their parent company, Digital Angel.
    - In ARKS, the name of the manufacturer is recorded in the “Note” field attached to the transponder record.
  - additional information and/or variations not covered above
    - In ARKS, this information is recorded in the “Note” field attached to the transponder record.

Authored by  
Ilse H. Stalis, DVM, Diplomate, ACVP, Zoological Society of San Diego  
Rachel Thompson, DVM, ISIS  
Natasha Scott, Virginia Aquarium & Marine Science Center  
Jean Miller, Buffalo Zoo  
with assistance from Adrienne Miller, ISIS  
Approved by IDMAG Steering Committee

Appendix I

CONSERVATION BREEDING SPECIALIST GROUP  
(IUCN/SSC/CBSG)  
TRANSPONDER WORKING GROUP  
Palm Desert, 20-22 October, 2000

Following is a list of implantation sites that the working group is recommending (changes and additions to the guidelines developed by the 1990 working group are noted in **bold print**).

Fish:

**Large (>30cm) – left base of dorsal fin**

**Small (<30cm) - coelomic cavity**

Amphibians:

lymphatic or coelomic cavity

Reptiles:

lizards, small (<12.5cm snout to vent) - **coelomic cavity**

lizards, large (>12.5cm snout to vent) - lateral left body side anterior to inguinal region

chelonians: **leg left hindlimb socket or leg**

(note that chelonians less than 10cm in length may be difficult to implant and alternative methods may need to be considered)

crocodilians: **left side anterior to the nuchal cluster or left hindleg.**

snakes: **left side dorsal to vent**

Birds:

All birds in left pectoral muscle or thigh, except:

**Ratites - in pipping muscle (in chicks) or in lateral left neck if adults.**

**Vultures, Old and New World - left base of neck.**

Mammals:

Behind the left ear or to the left of the spine in between scapula

The following exceptions are noted:

**Elephants: Left tail fold**

**Hyrax: left lumbar area\***

**Loris: Left lumbar area\***

\* **Site selection due to thick skin over neck (hyrax) or dermal plate in neck area (loris).**

**Carnivores: For some species (e.g., cheetahs in southern Africa and Mexican wolves in North America) microchips have been placed at the left tail base, so that area should be checked.**

As in the previous report, we recommend that all other implants (e.g., MGA implants as used by some institutions) that include microchips be placed on the right side of an animal in order to avoid confusion with identification implants.

## Appendix II Current ZIMS Identifier Locations

Abdomen	Lip	
Abdominal segments	Lumbar	
Antennae	Lymphatic cavity	
Antler	Mantle	
Arm	Mesothoracic leg	
Back	Metathoracic leg	
Beak (bill)	Nails (claws/talons)	
Bell	Nuchal cluster	
Body	Operculum	
Carapace	Opistoma	<b>Descriptors (future enhancement)</b>
Carpus (wrist)	Ovipositor	Anterior
Casque	Pectoral muscle	Caudal
Caudal peduncle	Pedipalp	Cranial
Cephalothorax	Pipping muscle	Distal
Cerci	Pit	Dorsal
Cervical area (neck)	Plastron	End
Chest (breast)	Proboscis	Fore
Coelomic cavity	Pronotum	Hind
Crest	Prosoma	Inner
Crown	Prothoracic leg	Lateral
Digit (finger)	Rostrum	Left
Digit (toe)	Rump	Lower
Ear	Scale	Medial
Elytra (wing casing)	Scapular	Middle
Eye	Scruff	Outer
Egg	Scute	Posterior
Face	Shell	Proximal
Fin - anal	Shoulder	Right
Fin - adipose	Side	Upper
Fin - caudal	Spinneret	Ventral
Fin - dorsal	Stifle (knee)	
Fin - pectoral	Swimmeret	
Fin - pelvic	Tail	
Flank	Tail fold	
Flipper	Tarsus	
Fluke	Telson	
Foot	Thigh	
Head	Thorax	
Hip	Toe	
Horn	Tusk	
Interscapular	Wattle	
Jaw - mandible	Web	
Jaw - maxilla	Wing	
Leg		
Legs - first pair		
Legs - second pair		
Legs - third pair		
Legs - fourth pair		
Leg socket		