



Guidelines for Transponder Placement and Recording

Issued by the AZA Institutional Data Management Advisory Group

31 March 2010

Note: The information contained in this document is not current and is in the process of being revised by the AZA IDMAG.

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.

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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
 - crocodilians:

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- 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.

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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.

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