

Report on ZIMS Data Standard Workshop held in Orlando, Florida, U.S.A.

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The ZIMS (Zoological Information Management Systems) Data Standard Workshop was held in Orlando, Florida, U.S.A., 16-20 May, 2005, organized by the International Species Information System (ISIS), which is based in Minnesota, U.S.A. The workshop was hosted by Disney's Animal Kingdom and the Living Seas, Orlando. The workshop was attended by more than 70 participants from different zoos, research institutes, universities, and representatives of national and international zoo bodies and organizations.

The agenda of the meeting began with facilitators, documentors and moderators training. The facilitators, moderators and documentors set the tasks and time allotted for each group which were distinguished by different colours, e.g., Red, Blue, Green, Yellow and Orange. Each session had focussed discussion and productive sessions. The group member assisted in the decision-making process. The participants' viewpoints and decisions of the group were documented assiduously. The participants provided information useful to establishing data standards and stayed focussed on the current task. They were requested to strive to reach consensus in all decisions. All five days the workshop had concurrent sessions of the different colour coded groups.

Sue Dubois of Disney Animal Kingdom, Chair of IADISK welcomed participants on the first morning. The process of orientation and introductory remarks were carried out by Kathy Traylor-Holzer, Programme Officer of the IUCN SSC Conservation Breeding Specialist Group. The Facilitators, Moderators and Documentors introduction was made by Syed Hassan, Project Manager of ZIMS/ISIS.

The following Data Standards were covered during the workshop by the different groups:

16 May — Animal monitoring, Priority of animal monitoring, Observation quality, Studbook type, Studbook region, Status studbook food sample type, Enclosure measures, Enclosure monitoring, Enclosure system type, Enclosure substrates, Collection assignment reason, Animal assignment, Issued condition, Permit/License status, Team type, Organization relation type demographic measures, Group derivation reason, Management set type, Goal objective

17 May — Studbook notes, Season quarantine category, Time frame type, Abbreviation, Non-medical alert type Management sets/groups logical data model review, Management plan status system, Use case development and review.

18 May — Sex change type, Contraception method, Contraception bout end reason, Fertility determination method, Body condition score, Restraint equipment, Restraint situation, Activity level, Demeanor type, Media item category, Image type, Image quality, Morphometric measures, Necropsy autolysis, Protocol type, Protocol plan category, Protocol plan status, Preshipment evaluation, Request type

19 May — Treatment type, Treatment reasons, Drug administration and Delivery, Drug inventory usage, Drug inventory type, Drug loss reason, Drug container disposal method, Fasting status, Hydration status, Restraint recovery assessment, Oxygen saturation, End tidal CO₂, Respiratory rate, Body, Body temperature, Blood pressure, Heart rate, Body system type, Organ type, Healthcare type, Healthcare journal entry, Healthcare case status, Medical alert category, Medical alert entry type, Diagnosis status, Medical test type, Test method status sample request, Sample event type, Transaction type, Shipping type, Shipping status, Storage location, Sample test location. System use case development and review sampling

20 May — Wrap-up session Summary

Day 1 (16 May, 2005) The workshop task was each team was to discuss and complete data standards templates. The workshop provided to think globally, across taxa and life histories, across geographic regions, across types of institutions, across time (historical, current and future data).

Rules for Recording Data standards

The Rules for recording information included valid values, rules, restriction. The data standards divided into core and veterinary groups. The templates distributed as partially filled with prior information. Each session assigned to teams for discussion. The team structure included a facilitator, documenter (to project the template), moderator (to help the entire process) and participants. There were four concurrent teams which were colour coded (for System case). Each session started with preparation by reviewing templates before session and sign-in sheet. Volunteers kept a document champion for each data standard.

Guidelines for discussion

The guidelines for discussion included following:-

- Think across broad applications
- Standardization allows broader use of data
- Document pros and cons of alternative views
- Stay focused and use time efficiency
- Take advantage of the expertise present
- Gradient of agreement
- Endorse
- Agree with reservations
- Abstain
- Disagree but willing to go with majority
- Disagree

Workshop ground rules

The workshop ground rules, communicated by Syed Hassan were the same used by CBSG in all its participatory workshops

- Leave all personal and institutional agendas at the door to focus task at hand
- All ideas are valid
- All viewpoints are recorded
- Everyone participates; no one dominates

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- v. Listen to each other
- vi. Treat each other with respect
- vii. Seek common ground
- viii. Differences and problems are acknowledged but are not necessarily "worked".
- ix. Complete templates discussed before start of the next morning session.

I was part of Red Group Team. During the discussion we discussed the following data standard/definition in detail: -
 Continuous – requires maximum constant attention (eg. ICU)
 Periodic – requires attention at regularly determined intervals (eg chronic condition, research project)
 Intermittent- requires regular attention for management (eg. Prevent medicine or life event),
 use opportunistic - Unscheduled, when it happens, just happened to walk
 None (eg. no specified monitoring)
 Validating scenarios (example)

We also worked out an opportunistic scenario by using various examples, such as :
 • a new born gazelle derived from caesarian section requires **INTENSE** monitoring and immediate monitoring priority.
 • A fish with newly discovered skin lesions requires **FREQUENT** monitoring level and **URGENT** priority level required
 • A monkey with relatively well-controlled diabetes requires **PERIODIC** monitoring level and **ROUTINE** priority.
 • A bird with malignant beak requires **INTERMITTENT** monitoring and routine priority level

Later session had discussion on Observation Quality?; Who is doing?, Where is applicable?, Who determines quality? and Introduction process rating? The Studbook Type was discussed in detail using the Local – institution, Regional, Country – national, International – global, Validation comments and Association/geographical

Day 2 (16th May, 2005) The Session introduction was made by Duncan Bolton. Reports by each team on day one work were presented.

1. Red Team — Presenter -Lacy Clippinger, highlighting the various Animal Monitoring Levels mentioned above.
2. Green Team — Presenter-Rachel Watkins Rogers, highlighted Food sample type, Sample/piece of food to be sent for lab analysis, for nutritional analysis, sample type to food category type, discussion on the definition of terms, Type of food, Enclosure measures, Define the enclosure within the barrier, paddock and space, depth, height, perimeter, surface, water area, Starting point for enclosure, Negative value of the enclosure, Enclosure monitoring type, Monitoring an enclosure not the animals, temperature, light, humidity, Enclosure system type and Enclosure substrates type.
3. Orange team — Presenter- Nilda Ferrer described the System use case
4. Blue Team — Presenter Kevin Johnson described the Collection assignment, Animal assignment, Issued

condition, Permit/License status, Team type, Organization relation type.

5. Yellow Team — Presenter - Leus Kristin highlighted on Demographic measures, group derivation. Census, Population growth, Distribution of animals, geographically, List of measurements for genetic point of view, Set up list criteria for animal population. Management plan typecollection plan, categorizing different plans, Protocol plan. It was decided that each plan should have a goal.

During Concurrent Session there was discussion and the following observations were made including the Studbook Note Type, General note (note with no specific context/ category), Behaviour note (ZIMS Core module should cover this), Identification note (ZIMS Core module should cover this), Animal management note (ZIMS Core module should cover this), Physic condition (ZIMS Core module should cover this), Breeding management plan (a note relating to actual, planned or potential reproductive activity. This would likely related to data coming from PM130 – manage population plans and recommendation, Medical note (ZIMS Veterinary module will cover), Reproductive note (a note relating to actual; reproductive activity including breeding), Research note (a note relating to actual reproductive activity including breeding).

The season should be divided on the basis of climatic factors, calendar, phenologic (status of vegetation) which also reflects, physiological season, hibernation, moulting, breeding, life stage, migratory, musth? Whether reproductive or breeding, courtship, metamorphosis etc.

The Business rule for this included that many season require a date span and location, therefore we may choose one or more category

3rd and 4th Day (18 & 19th May, 2005) – I could not attend the sessions, as I fell ill.

5th Day (20th May, 2005)

Since I was part of the Red Team, who was assigned data standards on 19th May, 2005 for Treatment Type, Treatment Reasons, Drug Administration and Delivery, Drug Inventory Usage, Drug Inventory Type, Drug Loss Reason, Drug Container Disposal Method, we spent half day going through the summary and presented and Lacy Clippinger presented the overview.

Towards the end of the workshop Kevin Johnson, Manager of Information, ARAZPA summarized the workshop. Sue Dubois of Disney Animal Kingdom and Syed Hasan, Project Manager of ZIMS/ISIS thanked all participants for their valuable input during the workshop. He also thanked local organizers Disney Animal Kingdom/The Living Seas for hosting the workshop and Facilitators, Moderators and Documenters as well as representatives of CGI for their hard work and efforts in getting the information from their respective groups and making the workshop a real successful. The workshop ended with a dinner at 'Boma' Animal Kingdom Lodge.

ZIMS Data Standards – Frequently Asked Questions
 (Source: ZIMS Data Standard Workshop Briefing Book, 2005)

What is a data standard? A Standard is a definition or format established by consensus and approved by a recognized body. Applied to data, standards provide structure, content, terminology (values), rules and guidelines for information collected. Data standards ensure that mandatory fields and requirements to validate the data when it is entered are captured, rules for the data elements are recognized and that we understand how the data is captured, stored and presented.

Why do we need data standards for the ISIS Zoological Information Management System (AIMS)?

Data standard connect the ISIS community by:

1. Increasing accuracy and communication
2. Providing the means to share information throughout our international community
3. Providing consistency of practice across the community

What is the ZIMS data standard development process?

1. The ZIMS software vendor CGI submits a completed use case to the ZIMS Technical Working Group (ZTWG). (Use cases define the various activities undertaken by zoos and aquariums that will be supported within the ZIMS application. These documents were created by zoo and aquarium experts.)
2. The ZTWG representatives and/or ISIS staff identify specific standards related to use cases in the core and vet areas, and report them to CGI.
3. CGI reviews/validates standards identified by the ZTWG/ISIS staff.
4. Data standards listserv moderators and/or ISIS staff assign the standard a unique number (e.g. Core: ZS0001 series/Vet: ZS2000 series).
5. Moderators and/or ISIS staff determine if an external/internal standard exists and whether or not additional expert advice (standard consultant) is needed.
6. Moderators and/or ISIS staff prepare a 'straw model' (draft) of the standard.
7. Data standards champions (subject matter experts (SMEs) and/or data consultants if necessary) will be identified during the data standards workshops.
8. The straw model standard templates are reviewed and expanded upon by SMEs at a data standards workshop and submitted to moderators for publication on the ZIMS Discussion Forum (www.zimsforum.com/discussion).
9. Moderators review the draft of the standard and prepare notes or comments that should accompany the standard template when published.
10. Moderators publish the standard in the data standards area of the ZIMS discussion Forum (www.zimsforum.com/discussion) providing a two-week deadline for discussion by listserv participants. (Note: two-week deadline is a guideline and may be increased at the moderator's discretion, if necessary.)
11. Moderators collect and publish summaries of the forum discussions.
12. Moderators revise standard template based upon input from forum participants.
13. Moderators publish the standard on the discussion forum for a vote with one-week deadline. (Note: one week deadline is guideline and may be increased at the moderator's discretion, if necessary.)
14. If consensus on the recommended standard is reached, the standard is marked as "pending" and submitted to the

International Animal Data Information Systems Committee (IADISC) for ratification. (See IADISC standard development process at www.iadisc.org.) Otherwise, all contested standards are archived for a future standards workshop.

15. If IADISC ratifies the standard, the standard is marked as finalized and CGI is notified.

16. If a recommended standard is not ratified at the regional level, it goes to the ISIS interim standard until a consensus is achieved at a global level.

Are existing regional or global data standards considered?

Yes, ISIS and the ZIMS team consider external standards first, as external standards are preferred. External standards provide benefit, including the opportunity to interface with wildlife, biodiversity and government agencies as well as the efforts of medical and professional organisations.

What are the goals and objectives of the data standards development process?

1. Achieve community consensus on how we are going to record and share information within ZIMS.
2. Provide the supporting information necessary to develop ZIMS.
3. Ensure the adopted standards support animal management, conservation and educational goals.

What methods of communication are used to develop data standards?

1. ZIMS discussion forums (core, vet, taxonomy and aquatic – www.zimsforum.com/discussion)
2. Focus groups
3. Workshops
4. Informal meetings and discussions

To participate in one of these forums, contact ISIS (isis@isis.org), or visit the ISIS web site (www.isis.org) and click on the "Explore ZIMS" link.

What is the role of the ZIMS data standards development list serves and discussion forum?

1. Increasing global participation in the data standards development process
2. Promoting and coordinating the involvement of subject matter experts (SMEs) in the ZIMS data standards development
3. Helping stakeholders identify and integrate changing business processes
4. Building consensus
5. Providing a communication tool between the ZIMS developers and the community

What criteria are used to select individuals to participate in the ZIMS data standards development process?

The data standards development process is an open process. Everyone in the zoo and aquarium community is welcome to participate.

Do the individuals participating in the data standards development process provide both a global representation of our community and a cross-section of institutions within the community?

Our goal is to achieve both a global representation of our community and a cross-section of institutions within the

community. Through the involvement of regional zoo and aquarium associations, we are promoting active participation from all regions worldwide. We also encourage participation from small and large institutions, government, private and society-run institutions, zoos, wildlife parks, aquariums and other members of the wider zoological community.

How can I acquire the list of individuals participating in the data standards development process?

A list of the list serve/discussion forum participants can be obtained by contacting the appropriate list serve moderator.

What happens to the input I provide to this data standards development process?

All input collected and compiled during the standards development will be part of the data standards document. The data standards documentation begins with a blank template initially filled out by the list serve moderator or during a data standards workshop. This becomes the straw model. After review by the moderator, the straw model is circulated on the list serve as a draft for review and feedback. All input is collected and compiled into a final draft. After consensus is reached on the list serve, the final draft is submitted to IADISC with the list serve recommendation for ratification. Each and every view is valuable, and is included during the development of the standards.

Who coordinates, collects and compiles the input provided to the data standards development process?

The listserv moderators coordinate, collect and compile the input provided to the standards development process.

What is a standards list serve moderator?

A list serve moderator is a person or group of people designated to monitor and document all the communication on the list serve and discussion forum.

Who are the standards list serve moderators?

Paul Andrew, Curator, Taronga Zoo (taxonomy list serve) Dr. Tracy Clippinger, Veterinarian, Zoological Society of San Diego (veterinary listserve); Nilda Ferrer, Senior Registrar, WCS (core data list serve); Kevin Johnson, Manager of Information Technology, ARAZPA (taxonomy list serve) Paul Scobie, Senior System Developer, ISIS (core data list serve); Dr. Ilse Stalis, Pathologist, Zoological Society of San Diego (veterinary list serve)

How are the standards list serve moderators selected?

List serve moderators are subject matter expert (SME) volunteers who have been integrally involved with the ZIMS project. They are SMEs that have been selected by the International Animal Data Information Systems Committee (IADISC) to assist with the data standards development process.

What are the responsibilities of a standards list serve moderator?

1. Coordinate and prepare a draft of the standard
2. Identify subject matter experts (SMEs) and standards consultants (if necessary) to champion the research required to complete the standard draft
3. Publish the standard draft for review
4. Moderate the discussions around the standard

5. Collect, compile and publish summaries of the discussions
6. Moderate standard voting for recommendations
7. For each discussion topic, promote active participation of SMEs working within the discipline

What criteria are used to determine a consensus has been reached on the recommended standard? Consensus has been reached if 51% (simple majority) of the total discussion forum participants vote in favour or against a standard recommendation. If less than 51% of the total discussion forum participants vote, then a consensus is reached if two-thirds of those who voted are either in favour or against a standard recommendation.

What happens to a standard if a consensus for recommendation is not reached?

If a consensus cannot be reached either by the simple majority rule or the two-thirds majority rule, the standard will be scheduled for further discussion during another data standards workshop.

What happens to a standard when a consensus for recommendation is reached?

Upon reaching a consensus for recommendation, a standard is sent to IADISC and the regional ADISCs for ratification.

What is IADISC?

IADISC – the International Animal Data Information Systems Committee – serves as a global forum/mechanism for the user community's involvement necessary to move forward with the planning, design, development and deployment of ZIMS.

What is the role of IADISC?

The role of IADISC includes:

1. Promoting and coordinating the involvement of subject matter experts in the ZIMS design workshops and data standards workshops.
2. Promoting data quality through regional ADISCs
3. Increasing global representation
4. Supporting the implementation of ZIMS by:
 - a. Communicating project activities and progress to the user community
 - b. Ensuring that regional training needs are defined and addressed
 - c. Helping users adapt to changing business processes
 - d. Facilitating user acceptance testing of ZIMS

What is ISIS?

ISIS is an organization of almost 650 institutions from more than 70 countries that have come together for the preservation of animal species. For more than 30 years, ISIS has supported international cooperation among zoos and aquariums that share data on 2 million animals for collection management and conservation. Now, to assure that our community has the best available tools, ISIS is working with experts in zoos and aquariums worldwide to build a twenty-first century database system – Zoological Information Management System (ZIMS).

What is a data standards workshop?

A data standards workshop is an opportunity for subject matter experts to meet in person to discuss, evolve, resolve

differences, come to consensus on or develop data standards.

How are the individuals participating in a standards workshop selected?

Subject Matter Experts (SMEs) with particular expertise in the data standards being discussed at each workshop are recommended to IADISC by the various Regional Animal Data Information Systems Committees. IADISC then selects an appropriate number of representatives, based on expertise, global representation of our community and a cross section of institutions within the community.

How will data standards be used in ZIMS?

Data standards define the rules for recording information in a system so the data is valuable to all users because it will allow information to be queried. Data standards specifically

address areas such as the valid values within a field, how data will be entered and presented and validated, and what rules apply regarding specific data values.

How can I become a part of the data standards development process?

If you are interested in participating in the development of the ZIMS data standards, you should contact ISIS (www.isis.org) or one of your regional ADISC representatives. Contact details for regional representatives can be found on the IADISC web site (www.iadisc.org).

Announcement: Agumbe Rainforest Research Station

Suralihalla, Agumbe Village, Thirthahalli Taluk, Shimoga District, Karnataka 577411

This is to announce the establishment of a rainforest research base in South India's highest rainfall area, Agumbe in the Malnad region of Karnataka's Western Ghats. We have acquired eight acres of organically farmed land totally surrounded by RF and at present a livable farmhouse. We have plans to set up simple and comfortable quarters for researchers, a modest lab, library and common kitchen/meeting place.

Besides encouraging researchers in every aspect of forest and wildlife ecology we plan to start local conservation work, primarily aimed at stream and river cleanup/management and planting blanks and corridors with rainforest trees. The rainforest can be a tough place to work (leeches and toenail fungus immediately come to mind) but this new base will maintain a year round scientific presence and will strive to compile a complete database of Agumbe's biodiversity.

We plan to set up a NatureNet Café in Agumbe Village which will be our office and local link with the outside world. It will be accessible to the students and farmers in the village and will serve as a local wildlife/ environmental information center.

We would be grateful if you could circulate this note and will value feedback from you on three things:

1. We need to hire a very keen, experienced Kannada speaking person as Base Manager. Write to us for job description, terms and salary etc.
2. Do you have a rainforest research project that you might like to base at ARRS? We don't have any research funds at present and anyone who wishes to work out of ARRS would need to contribute toward its operational costs, but we'd like to hear from you.
3. Do you know of any important rainforest corridors anywhere in the Western Ghats which are in need of protection, purchase or other intervention. The reason we're

asking is that a) there is a chance we can raise funds to help out and b) it may be the kind of place to set up a small research base modeled on ARRS especially if there is a credible and interested NGO or individual there.

Base Manager wanted

For Agumbe Rainforest Research Station Suralihalla, Agumbe Village, Thirthahalli Taluk, Shimoga District, Karnataka

We are looking for a base manager for our research station which is in the process of being set up on eight acres of land surrounded by rainforest near Agumbe Village in the high rainfall zone of the Malnad Region in the Western Ghats of Karnataka.

We need an experienced person who speaks Kannada. An academic degree is not important, only a commitment to hard work, with an interest in and enthusiasm for conservation, wildlife research and environmental education. The Base Manager will live at the research station. Involvement in research during spare time is encouraged.

Summary job description

- Managing daily operation of the research base, supervising construction and development at the base, including tree planting, maintenance and planning.
- Providing logistic support for researchers and visitors.
- Liaison with village and forest department
- Basic office work
- Accounts, email, phone and postal communication.

Salary

Rs.10,000 to 15,000 per month depending on experience and aptitude

Contact

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