

Standardised Welfare Assessment Tool

Guidance



This welfare assessment has been put together using the BIAZA Animal Welfare Toolkit as a basis and modified by Jo Elliott, the curator at RZSS Edinburgh Zoo and Highland Wildlife Park. It was then validated and further developed for general use in collaboration with Kristine Gandía, Sharon Kessler, and Hannah Buchanan-Smith of the University of Stirling.

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ABOUT THE STANDARDISED WELFARE ASSESSMENT TOOL

Aims of an animal welfare assessment

- To identify current welfare problems and the factors responsible.
- To identify factors which contribute to positive welfare states.
- To identify if information pertinent to assessing welfare is absent or difficult to access.
- To provide a structured framework to quantify changes in welfare overtime.

Assessment structure

The Standardised Welfare Assessment Tool (SWAT) is based on the Five Domains Model of Animal Welfare Assessment (Mellor et al. 2020). Each of 50 statements has a number and is clearly labelled as belonging to one of the 4 measured domains:

- Nutrition
- Health
- Environment (including Husbandry)
- Behavioural Interactions

Each question is also described as assessing a resource input or animal output.

Some statements have pre-questions, or sub-questions attached, in these cases the main question is highlighted. Pre-/sub-questions provide useful background information to help resolve or avoid issues.

Scoring

Each of 50 statements can be answered as follows:

- **Yes:** the statement is true for all individuals in the enclosure
- **No:** the statement is not true for at least one of the individuals under consideration – include details of which animals, and in what way the criterion has been failed in the notes and if there any mitigations already in place
 - In addition, if a response is “No”, the assessor will be asked to rate the severity of the negative welfare indicator on a scale of A-E with the letters signifying as follows ([Mellor & Beausoleil 2015](#)):
 - **A:** No challenge, but flagged for awareness/monitoring
 - **B:** Low

- **C:** Mild-moderate
- **D:** Marked severe
- **E:** Very severe- requires immediate action
- **N/A:** Not applicable – not relevant to the species/individuals being assessed.
- **Unknown:** the assessor could not make a judgement – this might be because the evidence is not there, because there is no way to assess that criteria currently, because the subject matter was outside of the assessors expertise or because the evidence couldn't be accessed on the day. If responding 'unknown' the assessor should note why they could not make a judgement.
- Note that no questions should be left blank in a complete assessment.

Write as many notes as you would like/have time for!

Assessment targets

Each assessment can cover:

- An individual animal
- One species group within a single enclosure
 - When responding to questions for a group, if any individual requires a 'No' response, the question should be answered as 'No' for the group.
 - Notes can then be added on the individual(s) which caused the answer to be 'No'

Assessing mixed species enclosures:

- The species should be assessed individually despite sharing the enclosure
- The exception is when all the species in the enclosure have nearly identical behavioural repertoires AND occupy the same niche within the enclosure.
 - Ex: Mallards and loons are housed together. They can be assessed together since they behave very similarly and use the environment in the same way.
 - Ex: Armadillos and sloths are housed together. They should be assessed separately since they occupy different niches in their environment and have very different behavioural needs within their environment.
 - Ex: Capuchin monkeys and squirrel monkeys are housed together. They should be assessed separately since although they have overlapping behaviours, they occupy different niches in their environment.

COMPLETING THE SWAT

Assessment files

Below is the list and explanation of the files contained within the SWAT zip folder. These files contain the questionnaire and other documents for guidance and analysis of the assessment outcomes. File names are in bold.

1. **SWAT questionnaire** (pdf): 50 question welfare assessment questionnaire, paper form. Questions organised by response method (i.e. reviewing records, behavioural observations, etc.)
 - a. Note that the ordering of questions in this document will cause the question numbers and domains to be out of order. However, it is meant to direct the assessor in a more efficient manner to respond to the questions.
2. **SWAT questionnaire online form**: This is not a file, but a link to the Microsoft form template to respond to the questions in a paperless, online format.
 - a. Link to the form:
[SWAT MS forms link](#) for duplicating
 - b. For directions on duplicating and using the online form, go to the [Microsoft form directions](#) section
3. **SWAT question explainer** (excel sheet): An excel sheet which provides details about the questions. Each column provides the following details about the assessment questions:
 - a. Question number
 - b. Domain (within Five Domains)
 - c. Subcategory
 - d. Resource Input/Animal Output
 - e. Full question
 - f. Sub-question
 - g. Guidance on the method to use to respond to the question
 - h. Recommended question delegation based on role at zoo
 - i. Whether the response to the question is objective or discussion amongst assessors is suggested
 - j. Suggested evidence-base
4. **SWAT guidance** (pdf): This document.
5. **SWAT visualisations_Power BI template**: A Power BI template for organisation and visualisation of the assessment outcomes. To use the Power BI template, you only need the 'SWAT paper form data entry' excel sheet or the unedited Microsoft forms export if completed online.
6. **SWAT paper form data entry** (excel sheet): If completing the SWAT on paper (using the 'SWAT questionnaire' document), this excel sheet can be used to enter the data and convert it to be entered directly into the Power BI template. For instructions on this, go to the [Power BI directions](#) section.

Using the SWAT online form

The SWAT Microsoft form is an online version of the SWAT questionnaire. The form is made to be duplicated by you for your own private use with your own Microsoft email (outlook, Hotmail, or institutional emails using Microsoft). Once duplicated, the form will appear in your Microsoft forms within your Sharepoint and all data will be collected and stored there.

Duplicating the form for private use:

1. Follow the link to the SWAT questionnaire online MS form: [SWAT MS forms link](#)
2. The SWAT online form will open in your internet browser as a copy
3. Click on the 'Duplicate it' button in the top right corner. This will open the form in the editing format within your Microsoft account.
4. Edit the title 'Standardised Welfare Assessment Tool online copy v1.0' to reflect your collection. To do this, directly type on the large title.
5. Click 'Collect responses'. This will open a window where you can select who can access and respond to the survey and methods to send the survey (e.g. email invitation, link, QR code, etc.).
6. Decide on which method of sharing the survey suits your group best and share the online form with your assessors.
 - a. A laminated paper with the QR code and the relevant guidance for the assessor can be one useful method.
7. Next step is to wait for the responses from your assessors. You should receive email notifications whenever a questionnaire is completed.

Reviewing and downloading online form responses:

1. To find the form and all of the responses again, either bookmark it, or navigate to MS Forms from your sharepoint menu (the 9 dots in the corner of your home page).
2. To view responses in MS Forms, open the form and click on 'View responses' in the top right corner.
3. This will navigate you to a page where you can view individual responses or an overview of all responses.
 - a. 'Responses Overview' is the portion of the window you can scroll to see a question by question summary of all responses.
 - b. For individual responses click on 'Check individual results' in the right panel.
4. **Download your responses** as an excel sheet by going to the excel file in the right panel > click the down arrow > click 'Download a copy'
 - a. Save the file with whichever name you would like.
 - b. **NOTE** that this excel file is the file needed to use the Power BI template. If you are planning on using the Power BI data visualisation template, DO NOT edit this excel sheet. You may add tabs, but the original tab/sheet contained in the file should remain unedited (including the sheet name) and should also remain in the first position.

Question delegation

To make the process of completing a welfare assessment more efficient, we are suggesting that questions be delegated amongst assessors based on expertise and familiarity with the animal. With this delegation, each assessor will not need to complete the entire 50 question assessment but will be delegated questions based on their expertise. This delegation also means that assessors will not be asked to answer questions which their role would not have the resources, access, nor expertise to do so reliably.

These delegation suggestions are based on practical opinions from the RZSS curator after piloting the SWAT with staff.

Description of assessors

Within the 'SWAT question explainer' and the 'SWAT questionnaire online form' specific zoo roles/job titles are referenced for delegating questions to assessors. The job titles are not strictly meant for assessors with those titles, but for assessors whose roles in the zoos fit the descriptions below. The titles are used for brevity in the two aforementioned files, but they reference these definitions:

- **Keeper:** an individual who is responsible for the day-to-day care of the animal. They should work closely with the individual animals and know the individual animals' day-to-day routines.
- **Animal team manager:** A person who oversees a selection of animals within the institution and is an expert in that taxonomic group of animals (e.g. mammals, birds, primates), understanding their life history, behaviour, and ecology to a higher degree than a keeper. Generally, they will be responsible for managing 'keepers' and overseeing/approving care protocols and husbandry practices, but will still work closely with the individual animals being assessed.
- **Curator or welfare officer:** A senior management employee who is responsible for the care and display of animals at a zoo. They may also manage the zoo's staff and ensure the safety and wellbeing of the animals. Welfare **officers** can also oversee welfare research being conducted in the zoo. They will have a very good understanding of the management of the animals being assessed but will not work directly with the individuals day-to-day.
- **Veterinarian:** A veterinary professional, technician, or assistant that is responsible for providing veterinary care to the animal. These employees have access to medical records of the animal.
- **Answer all questions:** Also available as an additional role to facilitate different methods of data collection allocation. A competent person who can access all required resources and give good, reliable answers based in expertise and familiarity with the animal across the assessment.

Recommended delegation

Within the 'SWAT question explainer' excel sheet, in the excel column for recommended assessor delegation, a recommended minimum number of assessors and the recommended titles will be listed. The number of titles listed equals the minimum number of assessors recommended for that question. Note that a slash (/) between assessor titles indicates that only one of those assessors needs to respond. Therefore, for example, if keeper/animal team manager and curator/welfare curator are listed, only two assessors are recommended for this question, one from each grouping. Ideally, the assessors would cover the areas described above (i.e. not having two 'keepers' where one 'keeper' and one 'curator' are recommended).

Our delegation recommendation for good efficiency is as follows:

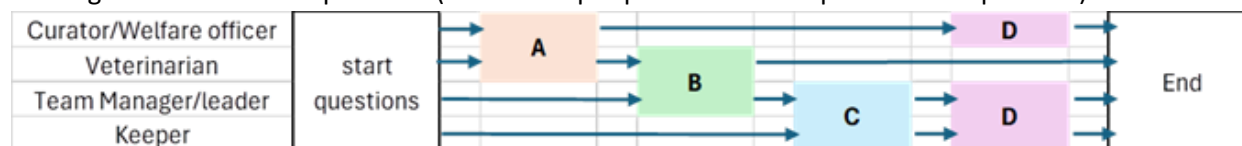
The sections in the figure below relate to the method used to respond to the questions, which is also how the SWAT paper and online forms are organised.

A being the reasonably objective records-based statements

B being the animal condition scoring and Q13 about ease of veterinary care within the enclosure

C being the behaviour questions (animal output)

D being the environment questions (resource input plus animal's response where possible).



Please note that in some institutions, one person can take on multiple roles. In these cases, the important things to consider are their relevant expertise and familiarity with the animals as described above. However, this **does not** mean that one assessor can reliably respond to the questions which require multiple assessors. For these questions, other assessors which have relevant expertise should be included for a discussion.

Delegating with the paper form vs. online form

Online form

When using the SWAT MS form online to complete the assessment, the assessment administrator must let their assessors know which role from the list above they belong to (including 'Answer all questions').

The assessor will be prompted at the beginning of the assessment, and at several points throughout the assessment, to indicate which role they have from the selection in our list of assessor roles. Choosing the roles in the online form will determine which questions are delegated to that assessor. Therefore, they need to know which role they should enter and answer with that same role throughout the assessment to receive the appropriate questions.

Paper form

To delegate with the paper form, you will print specific pages from the 'SWAT questionnaire' document that correspond to the sections (A-D) shown in the figure above. Follow these steps to delegate using the physical paper form:

1. Decide on the roles (from [the list above](#)) you want each assessor to fall under.
2. Open the 'SWAT questionnaire' document
3. Click File > Print > Enter custom pages to be printed based on the role of the assessor. Page number entries for each role:

Assessor role	Page number entry when printing assessment
Keeper	3-5
Animal team manager	2-5
Curator or Welfare officer	1,4,5
Veterinarian	1-2
Answer all questions	Whole document

4. Print out the copy depending on the role of your assessor and give them that concatenated (if applicable) copy to fill in.

Evidence-based responses and the BEEB resources

Currently, there is a movement in the animal welfare field encouraging welfare assessments to be completed using as much of an evidence-base as time and resources allow. Because of this, between the SWAT and the Behaviour and Environment Evidence-Base (BEEB), we are providing suggestions for methods to employ to build evidence records, and providing resources to collect behavioural evidence for welfare purposes.

Evidence-based suggestions and resources in the SWAT question explainer.

- The column titled "Suggested evidence-base" in the SWAT excel sheet provides suggestions for taking an evidence-based approach to responding to a variety of questions. The list includes suggestions such as creating systematic records of noise levels, light schedules, body condition scores, and behavioural cycles, among others.

The BEEB resources for collecting behavioural evidence for welfare assessments

- The BEEB is a set of resources developed in conjunction with the SWAT, specifically designed to take an evidence-based approach to behaviour and environmental interaction questions in the SWAT.
- These resources include:
 - Taxon ethograms
 - Corresponding ZooMonitor projects based on ethograms
 - Reliability testing materials

- Power BI templates for visualising ZooMonitor data in order to respond to specific questions in the SWAT (19 questions in Environment and Behaviour domains)
- The BEEB **does not** need to be used to respond to the SWAT. However, it can provide a solid evidence-base for assessing animal outputs if details are needed. This suite of resources can be found on [the tools' website](#).

INTERPRETING ASSESSMENT OUTCOMES AND DECIDING ON ACTION PLANS

After assessments have been completed by all assessors, they must be interpreted to determine welfare action plans. The following is details on how to use the Power BI visualisation template for visually analysing and organising the outcomes of the SWAT and guidance for interpreting the welfare assessment as a group, led by the manager/coordinator of the assessment.

Power BI template for assistance in interpreting assessment outcomes

- A Power BI template that automatically generates figures to guide discussions is available for the SWAT.
- The power BI template is available within the same SWAT zip folder as this document.
- It is **not necessary** to use this template to determine outcomes, but it may help interpret outcomes of the assessment and guide discussions.

Using the SWAT Power BI template:

1. To begin, be sure you have the free Microsoft software, *Power BI desktop*, downloaded. Download is available [here](#).
2. Open the 'SWAT visualisations_Power BI template' from the SWAT zip folder.
3. Power BI desktop will launch. Wait for a small window to pop-up titled 'SWAT visualisations_Power BI template' which provides directions on how to open your desired file in the template.
4. Enter the file path and click 'Load'.
 - NOTE** Which excel sheet to copy the path of:
 - a. If using the SWAT paper form, enter your data into the 'SWAT paper form data entry' excel sheet, save the sheet, and copy the path to that excel sheet to paste into the pop-up window.

- b. If the assessment was completed using the MS form, copy the path to the downloaded MS forms excel sheet export (DO NOT edit the excel sheet, it should be in its raw form when entered into Power BI).
5. Follow directions within the template to use it.

Example of figures:



Questions in which assessors responded "No"

Domain	Resource input/Animal output	Question	# of Assessors responding "No"	Response
Health	Animal output	Animals are free from chronic or recurring acute disease/injury/impairment (and note remedial actions in place if not)	4	N
Health	Animal output	Body condition score is within normal limits	4	N
Nutrition	Animal output	Food is presented appropriately for the species/individual (consider timing, method, position in enclosure, social interactions, variation)	3	N
Environment	Resource input	Species appropriate parameters for light levels, quality and photo period are set out in an environmental management plan (EMP) and considers UV, photoperiod, flicker/glare, colour, internal/external, seasonal, night-time, appropriate variation, choice, records etc.	3	N
Environment	Animal output	The size, shape and topography of the enclosure is appropriate for the species to exercise, explore and exhibit normal territorial behaviours	3	N
Environment	Resource input	Air quality is high and free from pollutants, heavy dust, aversive odours and is well ventilated	2	N
Nutrition	Resource input	An appropriate quantity of high quality, nutritious food is available to all species/individuals and lifestages (include browse and/or graze where appropriate)	2	N
Behaviour	Animal output	Exhibits play behaviour (alone or socially)	2	N
Behaviour	Animal output	Exhibits reproductive behaviours as appropriate to the species and individual (courtship, mating, nest-building, incubating, birth, rearing etc.)	2	N
Total			34	

Interpreting assessment outcomes and deciding on action plans

1. Discuss any responses where at least one of the assessors responded "No" or "Unknown". Assessors discuss to determine reasoning of the response and whether it is valid.
2. It is strongly suggested that a consensus survey is drafted at this point in time
 - The coordinator will consider responses from each assessor and guide discussions to come to a consensus on the response.
 - Where there are "No" responses, the severity each assessor has indicated should be used to guide discussions. Assessors should come to a consensus on the severity of the welfare concern if the consensus response is "No".
3. Based on the consensus responses, a brainstorming session for determining an action plan to address the "Nos" should occur as a group or with the relevant assessors for the concern in focus.
 - These discussions will be based on the severity of the concern, whether the concern is for a resource input or animal output, stakeholders involved, and the availability of resources to address the welfare concern.
4. The group should also discuss where there is a majority consensus for "Yes" responses to understand how promoting positive welfare states, and the factors which are helping, can be incorporated into action plans.

SUGGESTIONS FOR ASSESSMENT PROCEDURE

(For managers/assessment coordinators)

Zoos vary greatly in their management structure and available resources. Therefore, we are not suggesting that one specific procedure is followed, but instead providing several examples of processes/protocols for completing the assessment that may fit the structure of your zoo.

Example 1: Regularly scheduled assessments organised and run by animal team managers

In this example, the assessments are scheduled around a meeting to discuss the assessment with all assessors.

Management:

- The role which oversees and ensures assessments are completed are the animal team managers (role described in [Description of Assessors](#)).
- Therefore, there should be several employees overseeing the completion of assessments, one for each of the taxonomic groups/animal collections.

Scheduling:

- A preset schedule of meetings is decided to cover all species within the year (or required time period to meet regulations). There may be one meeting per species or one meeting per enclosure.
- A list of appropriate assessors for each species/enclosure is made.
- Assessors are assigned for each species/enclosure.
- The animal team manager asks the assessor two months prior to the discussion meeting notifying them that they will be completing the assessment. The manager provides guidance on how to complete the assessment, directs them towards any resources needed to complete the assessment, and is available for any questions.

Assessors completing assessment:

- Assessors will complete the assessment based on their role and which questions are delegated to them based on their role.
- Assessors will have two months to complete the assessment, ensuring its completion for the meeting.
- They will seek out any evidence available to respond to their questions as recommended in the excel spreadsheet.

Determining and interpreting assessment outcomes:

- The group of assessors will meet and discuss responses to questions, led by the animal team manager

- The action plan can then be determined following the guidance in the previous section.

Example 2: In this example, we describe a group of assessors that meet all at once to complete the assessment

Management:

- The person organising and collating the information can be at the [curator or animal team manager](#) level. This protocol can be applied at either level.

Scheduling:

- A preset schedule of meetings is decided to cover all species within the year (or required time period to meet regulations). There may be one meeting per species or one meeting per enclosure.
- A list of appropriate assessors for each species/enclosure is made.
- Assessors are assigned for each species/enclosure.
- The manager asks all of the assessors, at least one month prior, to coordinate a meeting all together. The meeting should be long enough to respond to the entire assessment, interpret the outcomes, and decide on an action plan.

Assessors completing assessment/Determining and interpreting assessment outcomes:

- Assessors should have gathered any evidence they deem relevant for responding to the questions in advance of the meeting (i.e. veterinary records, behavioural data figures, best practice guidelines if available, etc.).
- The assessors respond to the questions as a group, discussing each one and coming to a consensus on each question together.
 - Assessors will need to visit the enclosure.
 - Each assessor should be considered for their relevant expertise for the questions that are recommended be delegated to them.
 - Efforts should be made to allow all opinions to be considered
- At the end of the meeting, there will be just one assessment completed.
- The outcomes will then be interpreted, and action plans determined following the guidance in the previous section.

Example 3: In this example, discussion between assessors is conducted over email or meetings, depending on circumstance.

Management:

- The person organising and collating the information can be at the curator or animal team manager level. This protocol can be applied at either level.

Scheduling:

- A preset schedule of when assessments need to be interpreted and action plans made is decided to cover all species within the year (or required time period to meet regulations).
- A list of appropriate assessors for each species/enclosure is made.
- Assessors are assigned for each species/enclosure.
- The manager asks the assessor at least two and a half months prior to the deadline for the action plan. The manager will provide guidance on how to complete the assessment, direct them towards any resources needed to complete the assessment, and be available for any questions.

Assessors completing assessment:

- Assessors will complete the assessment based on their role and which questions are delegated to them based on their role.
- Assessors will have two months to complete the assessment, ensuring its completion to allow the manager two weeks to consider all assessments from each assessor and discuss responses and action plans with assessors.
- They will seek out any evidence available to respond their questions as recommended in the excel spreadsheet.

Determining and interpreting assessment outcomes:

- The manager will be responsible for coordinating discussions via email or meetings for questions where discussion is recommended.
- They will ensure that these discussions occur before the deadline for an action plan.
- Determining the action plan can be done following the guidance from the previous section.