



*Zoo Quality of Life Program:
Refinements needed to set clear expectations*

November 2017
A Report by the Office of the Auditor

Brian Evans
Metro Auditor



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MEMORANDUM

November 15, 2017

To: Tom Hughes, Council President
Shirley Craddick, Councilor, District 1
Carlotta Collette, Councilor, District 2
Craig Dirksen, Councilor, District 3
Kathryn Harrington, Councilor, District 4
Sam Chase, Councilor, District 5
Bob Stacey, Councilor, District 6

From: Brian Evans, Metro Auditor

BE

Re: Audit of Oregon Zoo Quality of Life Program

This report covers the audit of the Oregon Zoo's Quality of Life Program. Quality of Life Programs are used to assess the need for changes to an animal's care including living space, diet, medical treatment, or euthanasia. The purpose of the audit was to evaluate the efficiency and effectiveness of the Program to inform its next stage of development. The audit was added to the FY2016-17 Audit Schedule.

Discussions about updating the Program were ongoing during the audit. There was general agreement that quality of life considerations were important. However, perspectives varied about which aspects of the Program added value. The Zoo's Program was based on similar programs at other zoos, which provided a strong foundation to build on. However, changes since it was first created reduced clarity about its purpose and alignment with other animal welfare efforts.

The audit found there were opportunities to improve the Program by incorporating lessons learned and new research, and prioritizing animals to set realistic expectations. There was also a need to build assessment capacity and clarify roles and responsibilities among employees.

I have discussed our findings and recommendations with Scott Cruickshank, General Manager of Visitor Venues; Don Moore, Zoo Director; Sheri Horiszny, Deputy Director of Living Collections; and Kristin Spring, Veterinary Hospital Administrator. A formal follow-up to this audit will be scheduled within three years. I would like to acknowledge and thank all of the management and staff who assisted us in completing this audit.

Summary

The Oregon Zoo created a pilot Quality of Life (QoL) Program in 2015. Since then, at least 20 animals have had some level of the Program initiated. The primary purpose of the Program was to establish a baseline of an animal's behavior and set benchmarks for warning signs prior to the onset of major health issues. The pilot Program was based on similar programs at other zoos, which provided a strong foundation to build on. However, changes since it was first created have reduced clarity about its purpose and alignment with other animal welfare efforts.

Discussions about updating the Program were ongoing during the audit. There was general agreement that QoL considerations were important. However, perspectives varied about which aspects of the Program added value. Without more clarity, there is a risk that employees or the public could view the QoL process, or lack of a QoL process, as evidence of poor animal welfare.

Underlying the various views of the Program were differences in who had information about an animal's QoL, and who was responsible for making QoL decisions. Trust and transparency are needed to ensure sufficient information is available for each role in the process to be effective.

There was general agreement among management that there were not enough resources to include all senior animals in the Program. As a result, there was a need to prioritize animals for inclusion in the program. Most of the animals included in the Program had QoL benchmarks and assessments documented. However, the level of detail varied between animals. Inconsistencies could make it more difficult to communicate QoL information to other employees or the public.

The Program was administered by a small number of employees. As a result, relatively few employees have been introduced to it. As the Zoo considers the next steps for the Program, it will need to communicate with and train the employees who are expected to implement it.

We recommend the Zoo clarify the Program's purpose and relationship with other animal welfare efforts, and train employees about how to fulfill their role in the program. We also recommend the Zoo periodically reevaluate and update the Program to stay current with best practices and lessons learned internally.

Background

As human life expectancy has increased, there has been more interest in quality of life considerations. Hospice care is probably the most widely known approach for humans. It seeks to address the needs of people who are near the end of life. Providing hospice care can be interpreted as placing a higher priority on the *quality* of time remaining in a person's life, as opposed to taking action to increase the *quantity* of time remaining.

A similar approach, sometimes called pawspice, has been applied to domestic animals. Pawspice care is mostly associated with pets like cats and dogs, but the concept has been adapted by some zoos. Quality of life programs are a common way zoos have implemented the idea.

While QoL may be used at different points of time during an animal's life, it appears to be used most often to evaluate the welfare of zoo animals that are considered to be geriatric. The primary purpose of the Oregon Zoo's QoL Program is to establish a baseline of an animal's behavior and set benchmarks for warning signs prior to the onset of major health issues. Establishing these parameters early is thought to increase the objectivity of decision-making if signs of decreased welfare arise. Management stated that the Zoo's program is a leader among the institutions accredited by the Association of Zoos and Aquariums (AZA).

The hope is that QoL benchmarks can be a reference point among employees to facilitate discussion about the need for changes to an animal's care including living space, diet, medical treatment, or euthanasia. QoL discussions can address potential bias that could prevent employees from making sound welfare decisions. Waiting too long can result in lower QoL for an animal. On the other hand, making decisions without objective criteria or complete information could result in unnecessary medical treatment or allegations of poor treatment.

QoL programs typically include evaluation of five areas: nutrition, environment, physical health, behavior and mental. Within each area are a set of negative conditions that zoos seek to avoid to promote overall welfare. Some zoos have developed QoL discussion guides, assessment tools, and scoring systems to help employees make decisions.

The Oregon Zoo (Zoo) created a pilot QoL Program in 2015. Since then, at least 20 animals have had some level of the Program initiated.

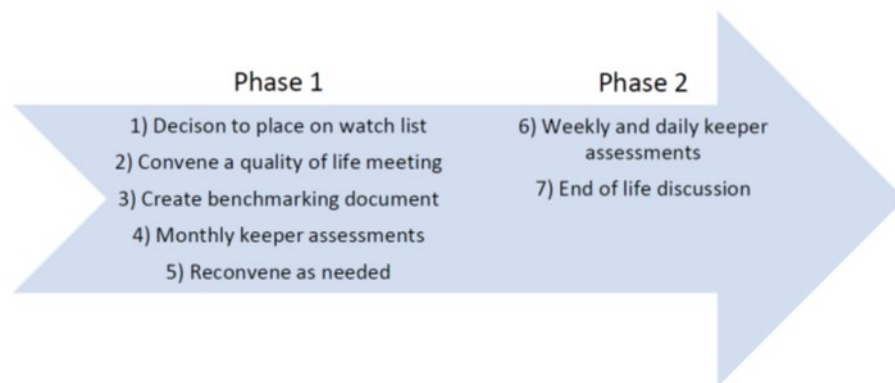
Exhibit 1 The number of animals involved in the program has grown each year

2015	2016	2017
2 animals	7 animals	11 animals
Kia (amur leopard)	Widdle (African wild dog)	Kasa (bobcat)
Vivian (sun bear)	Razi (dwarf goat)	Inji (orangutan)
	Conrad (polar bear)	Wooster (African wild dog)
	Tasul (polar bear)	Jody (sun bear)
	Dannon (swamp monkey)	Phyllis (gibbon)
	Packy (Asian elephant)	Kinshasa (mandrill)
	Eddie (otter)	Nikki (mandrill)
		Victoria (mandrill)
		Thelma (otter)
		Kajika (bobcat)
		Kiku (colobus monkey)

Source: Auditor's Office analysis of Oregon Zoo's Quality of Life Program documents

The first phase of the Zoo's pilot program started with the decision to put an animal on the watch list and begin monthly monitoring. This phase included a benchmarking meeting with animal keepers, curators, and veterinary staff. After benchmarks were set, the animal was expected to be assessed by animal keepers once a month. Each assessment was expected to include pictures and an evaluation of the following areas: behavioral/psychological; physical/physiological; and behavioral/social and environmental. A second phase of the program was initiated if conditions changed that required more frequent evaluations.

Exhibit 2 The pilot program included seven potential steps organized in two phases



Source: Oregon Zoo's Proposed Quality of Life Program Discussion Guide

The audit was initiated, in part, because of heightened public interest in Packy. Packy was a 54-year-old Asian Elephant who was euthanized in February 2017 due to concerns about the effects of tuberculosis on his health, and the risk that it could be transmitted to other animals or humans. Reports were made to Metro's Accountability Hotline in early 2017 that raised concerns about Packy. We were unable to substantiate those concerns. After the reports were made, we reviewed recent newspaper articles that showed quality of life issues were an increasing area of focus for some other zoos in the United States.

Results

More clarity needed for the next phase of program development

The Zoo's QoL Program was based on similar programs at other zoos, which provided a strong foundation to build on. However, changes since it was first created have reduced clarity about its purpose and alignment with other animal welfare efforts. There are opportunities to make it more efficient and effective by:

- Incorporating lesson learned and new research for the next phase of program development;
- Prioritizing animals to set realistic expectations;
- Building assessment capacity to increase consistency and efficiency; and
- Clarifying roles and responsibilities among employees.

Discussions about updating the Program were ongoing during the audit. This was due to new leadership at the Zoo including a new Director and Deputy Director of Living Collections, and changes in veterinary staff. There was general agreement that QoL considerations were important. However, perspectives varied about which aspects of the Program added value.

Some employees viewed the Program as a more formal version of what they were already doing and questioned the need to document discussions and assessments. Some highlighted the value QoL assessment tools can have, but did not think they were needed except when opinions differed among employees. Some thought a formal QoL process was needed to provide objective information to make animal welfare decisions.

Moving forward it will be important to consider input from a variety of perspectives to make sure the Program's purpose is clear and the amount of resources (budget and employee time) devoted to it are consistent with expectations. Without more clarity, there is a risk that employees or the public could view the QoL process, or lack of a QoL process, as evidence of poor animal welfare.

Underlying the various views of the Program were differences in who had information about an animal's QoL, and who was responsible for making QoL decisions. In general, the employees who assessed QoL did not have the authority to make QoL decisions such as changes to the environment, nutrition, medical treatment or euthanasia. As such, there was a risk that the information they collect may over- or understate the animal's QoL because of uncertainty about how it would be used. Conversely, there was a risk that decision-makers would question QoL information because they were uncertain of its reliability. Both issues have the potential to undermine the purpose and value of the Program. Trust and transparency are needed to ensure sufficient information is available for each role in the process to be effective.

Animal keepers take care of animals on a daily basis, so they have the most knowledge about an animal's daily routine. As a result, they may view QoL monitoring as unnecessary or duplicative of their normal routines, and may be uncertain about how the information will be used by others. Animal

curators supervise all the keepers in an area so having regular QoL updates can help them stay informed about each animal’s status. Veterinary employees manage animal medical records, but do not have much information about day-to-day behaviors, which could indicate declining QoL.

The Deputy Director of Living Collections manages both animal care (keepers) and animal health (vet) employees. If there are disagreements about an animal’s status, the Deputy Director needs information to make decisions. Finally, the Zoo Director is responsible for delivering the Zoo’s mandate to provide the highest level of animal welfare. Information to help understand how decisions are made and what resources are needed is important part of achieving the Zoo’s mission.

Exhibit 3 Program’s effectiveness depends on sharing information between roles

Position - Role	Information Generated	Potential Information Gap
Animal Keepers – <i>Primary animal care providers</i>	Day-to-day knowledge of animal behavior	Clarity about how information will be used
Animal Curators – <i>Supervise animal keepers</i>	How QoL for each animal was obtained and evaluated	Information to make care and health decisions in coordination with veterinarians
Veterinarians – <i>Primary animal health providers</i>	Medical records for all animals	Information to make care and health decisions in coordination with curators
Vet Hospital Manager– <i>Liaison between animal care and animal health employees</i>	Coordination and sharing of animal care and health information	Information to understand potentially divergent opinions about an animal’s QoL
Deputy Director – <i>Supervises animal care and animal health employee groups</i>	Process and information used to make decisions if divergent opinions about an animal’s QoL arise	Information to make decisions if there are unresolved, divergent opinions about an animal’s QoL
Zoo Director – <i>Supervises Deputy Director of Living Collections</i>	Process and information used to make decisions to balance the Zoo’s mission with available resources	Information about the overall status of the Zoo’s animal welfare efforts

Source: Auditor’s Office analysis of Quality of Life Program documents and interviews with employees involved in the Program.

The Zoo's euthanasia policy references QoL benchmarks as part of its decision-making process for some situations. Ensuring QoL information is available, and useful, for those responsible for those decisions is an important aspect of the process. End of life decisions can be very difficult for everyone involved. Having clarity about what information was used to make the decision is an important part of helping employees and the public understand, even if they do not agree.

There appeared to be some hesitancy to initiate QoL discussions among some employees because of an assumption that the Program was a precursor to euthanasia. Connecting the Program with the Zoo's other animal welfare efforts could be one way to overcome the perception that its purpose was to justify euthanasia.

Although it was initially developed as a stand-alone program, there appears to be potential cross-over with other animal welfare efforts at the Zoo that could broaden the information used to assess QoL. The Animal Welfare Committee is intended to help the Zoo achieve its goal of making animal welfare a guiding principle. The Committee includes internal and external animal welfare experts who could help inform the Program's next stage of development. Best practices state that including outside experts, like those recently added to the Committee, can increase the scientific rigor of animal welfare efforts at zoos.

In addition, the Zoo's hormone laboratory has the ability to monitor stress levels in animals, which could provide objective quantitative data for QoL assessments. Hormone data has been used this way for at least one animal. It could be used to prioritize animals for inclusion in the Program. If hormone benchmarks were available, the data could also be used to assess the impact of changes to an animal's living environment, medical treatment or nutrition that were initiated as part of the Program.

Similarly, behavior audits were conducted by volunteers for some animals at the Zoo. The audits could be used to identify behaviors that may signal declining QoL or be used to augment QoL assessments that have already started.

Prioritize animals to set realistic expectations

The Program was initially designed to focus on senior and geriatric animals. Animals were considered to be senior when they were past the median age for their species. Geriatric was defined as animals that were past the median age of their species, *and* had a chronic condition or physical impairment.

We found that both definitions could be challenging to use. For example, the median ages of some species were unknown. Another data point may be needed if an age standard continues to be used by the Program. In addition, the criteria to determine if an animal had a chronic condition or physical impairment was unclear. There appeared to be variation in how employees determined if an animal was geriatric.

Applying the Program to all senior animals would require more resources compared to a program that focused only on geriatric animals. For example, last year the Zoo put seven animals on a geriatric watch list. In comparison, at least 57 animals, with established median ages for their species, were considered senior as of January 1, 2017. Assuming the time and resources to initiate the Program for geriatric and senior animals were the same, it could require ten-times the resources to initiate the QoL Program for all senior animals.

There was general agreement among management that there were not enough resources to include all senior animals in the Program. In addition, there may not be a need to make adjustments to an animal's care just because they were past median age. As a result, there was a need to prioritize animals for inclusion in the Program.

One of the factors that is important to consider when prioritizing which animals to include in the Program is the availability of reliable information and behavior criteria. For example, about 72 percent of the Zoo's animals (excluding invertebrates) did not have an established median age. Similarly, the animal assessment tools and criteria that are commonly used in QoL programs were mostly developed for mammals and some birds. There was comparatively little information or opportunity to apply them to other species.

An availability-control matrix is one way to prioritize efforts when there is variability in the information available or ability to control outcomes. Using this approach could help inform how the Zoo prioritizes animals for the Program. Most QoL assessment tools are based on research on mammals and some birds.

Further prioritization among mammals and birds may be possible because there is more information available about some species than others (e.g. behavior audits, hormone baseline levels). Similarly, the Zoo's ability to address potential declines is higher for some species than others for various reasons (e.g. social structure of species, ability to change habitat or diet).

Depending on the criteria, it may be possible to narrow the list of potential animals for the Program to 50 or fewer. Additional prioritization could then be made based on the individual medical records of each potential animal. If this approach was used, it might look something like Exhibit 4, however the specific criteria would need to be developed by the Zoo's animal welfare experts and those familiar with the exhibits and available resources.

Exhibit 4 A matrix can help prioritize efforts when there is variability in the amount of information available or ability to control outcomes

		Options to Address Declining QoL		
		Many Options	Some Options	Few or No Options
Available Information to Evaluate QoL	High availability	Species A	Species B	Species C
	Moderate availability	Species D	Species E	Species F
	Low availability	Species G	Species H	Invertebrates Fish Reptiles Amphibians

Source: Auditor's Office analysis based on animal welfare literature and interviews with employees involved in the Program.

Variations in the quality of information can reduce its effectiveness

Most of the 20 animals included in the Program since its inception had QoL benchmarks and assessments documented. However, the level of detail and completeness varied between animals. While variation may not have a large impact among the employees who work closely with each other or the animal, inconsistencies could make it more difficult to communicate QoL information to other employees, or the public, who are less familiar with the animal.

Benchmarks and assessments were designed to inform discussions about an animal's condition so the quality of information collected was key to the Program's effectiveness. After an animal was included in the Program two steps were expected to be completed. The first step was to convene a benchmarking meeting. A discussion guide and benchmarking template were intended to be used to document normal behaviors and any corresponding warning signs that might signal declining QoL.

The second step was monthly, weekly, or daily assessments of the animal to determine if any of the warning signs were observed. In some cases a "critical score" was established to quantify the number of days and severity of a condition. If reached, more intensive actions were taken to address rapidly declining QoL.

Exhibit 5 There were two steps to evaluate an animal’s quality of life

Step	Purpose	Criteria
Benchmarking	Summarize normal conditions and determine negative conditions that may indicate declining QoL	Normal and abnormal conditions in three areas: <ul style="list-style-type: none"> • Behavioral/Psychological • Physical/Physiological • Behavioral/Social/Environmental
Assessments	<p>Assess animal against benchmarks</p> <p>Assess animal against refined benchmarks that triggered need for more frequent monitoring</p> <p>Determine if animal's health has declined to the point of poor QoL</p>	<p>Monthly observations of animal compared to benchmarks</p> <p>Daily or weekly scoring on a scale from 1-5 to assess good and bad days against a new benchmark or “critical score”</p> <p>Weekly/daily scores reach benchmark/critical score.</p>

Source: Auditor’s Office analysis of the Zoo’s Quality of Life Pilot Program documents

Documents for each animal generally followed what was outlined in the Program guidelines, but underdeveloped criteria at each stage reduced the usefulness of the information gathered.

Benchmarking

It was not clear if the Program’s discussion guide was used during the benchmarking meetings. Some of the benchmarking documents we reviewed used different formats and observations that may not provide complete coverage of everything that should be considered. Focusing too narrowly could miss warning signs or opportunities to improve an animal’s QoL.

Professional literature identifies five areas for assessing animal welfare: nutrition, environment, physical health, behavior, and mental. Each of these elements was referenced in the Zoo’s benchmarking documents, but the criteria for each element was not very specific.

Some benchmarking documents were an overall assessment of the category (e.g. behavioral/psychological), while others had detailed observations within each category. Unclear benchmarks could reduce the effectiveness of assessments because it could be difficult to determine the difference between normal and abnormal.

Other programs in the United States use detailed questions to structure QoL discussions. Framing the discussion around questions, not just categories of behavior, may make it easier for employees to understand

what is expected. It could also increase the chances that the benchmarking document would be easier to understand for employees who were not involved in its creation.

Professional literature also shows that some animal welfare experts advocate for the inclusion of positive conditions when assessing QoL. The idea is that animal welfare should be determined by the net balance between negative (warning signs) and positive conditions. For example, an animal may show signs of pain when moving, but still take advantage of enrichment activities. If a benchmark was only set up to document pain, it may miss other behaviors that signal good QoL, even with some discomfort.

Assessments

After benchmarks were set, the animal was expected to be evaluated once a month, unless conditions changed that required more frequent evaluations. Program documents outlined general expectations for assessments, but left it to each animal group to determine how they were done.

There was variation in animal assessments among the 20 animals that have gone through the Program. Some were very detailed, while others were not. Some included pictures or videos, and others did not. There were gaps in monthly assessments for some animals and no assessments were documented for others. We learned at least one animal was being assessed quarterly, which appeared to be a relatively new change to the Program.

Quantitative scoring and critical scores were developed to assess some animals, but it was not clear if that information was used. In one example, a critical score was developed but assessments did not mention it. In another, the critical score was referenced in a QoL decision, but the scale outlined in the Program guidance was different than what was used. For other animals, a quantitative scoring system was used initially, but later disregarded because of concerns it could be manipulated to achieve the desired score.

Because of the potential subjectivity of any assessment, it may be necessary to broaden assessment methods to include different perspectives and types of information. Most assessments we reviewed were done by animal keepers. They have the most day-to-day knowledge of the animal's behavior, but also may be too close to the animal to be able to recognize changes. In interviews, this was referred to as "new normal" bias. Overcoming that bias may require periodic check-ins from employees that have fewer interactions with an animal.

Veterinary employees may have more objectivity because they see the animal less frequently. While changes might be more noticeable to them, they are also less knowledgeable about the animal's normal behavior. To overcome the potential subjectivity in each role, it may be useful to have them assess the animal using the same criteria and tools separately. The evaluations could then be discussed collectively. After each has a chance to understand the other's perspective, it may be easier to reach agreement on the animal's QoL, and identify ways to improve it. This would be similar to the process for

Roles and responsibilities have not been clearly established

setting up benchmarks.

Another way to address subjectivity in animal assessments would be to use both qualitative and quantitative information. Since there are weaknesses with each, combining them could allow employees to benefit from the strengths each type of information can provide, while controlling the risks of relying too heavily on one of them.

There are assessment tools available both internally and externally that could create a broader and more consistent assessment process for the Program. Internally, the hormone lab and behavior audits could be used to inform QoL assessments. There are also external sources of leading practices to help animal care and animal health employees assess QoL. These include both qualitative and quantitative tools.

As the Program evolves, increasing the consistency of assessments would help ensure animals are evaluated using similar criteria. It would also increase the Zoo's ability to demonstrate that any QoL decisions are made as consistently as possible. This could provide information to respond to any potential allegations of bias in the decision-making process.

Roles and responsibilities among employees was another area of the Program that could benefit from greater clarity. The Program was administered by a small number of employees. As a result, relatively few employees have been introduced to it. As the Zoo considers the next steps for the Program it will need to communicate with, and train, the employees who are expected to implement it.

There were differences between what was outlined in the Program guidance, the roles employees played for animals that have gone through the Program, and management's current expectations. The original Program guidance documents did a good job of summarizing who was involved in each step of the process. However, for some steps, the responsibility was shared, which could reduce the chances of it being completed if there was not good communication. In other places, it was unclear who had the authority to make decisions.

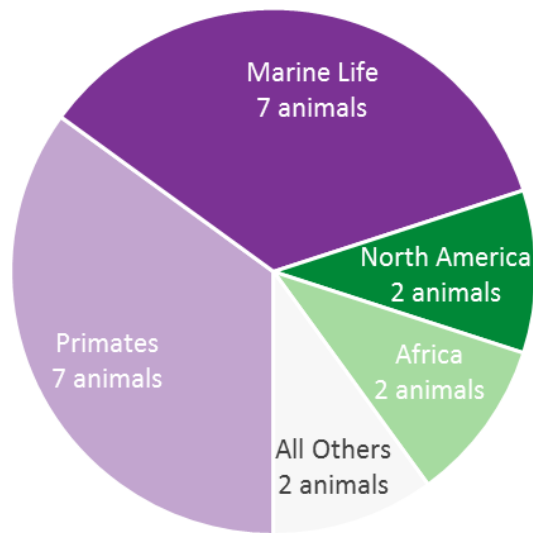
Data to determine which employees have had experience with the Program was incomplete because meeting attendees, and who completed animal assessments, were not documented consistently for each animal. For example, for most animals it was unclear who was involved in determining whether an animal was included in the Program. Attendees at benchmarking meetings were not recorded for most animals, and the employee who completed the assessments was usually not documented.

Documenting who was involved may become less important as employees gain more experience with the Program. However, concerns have been raised about who was consulted, and who provided input, for some animal welfare issues. Transparency about who was involved, could help improve

clarity about how a decision was made. It could also help identify training needs as the Program moves into its next stage of development.

The decision to include an animal in the Program was expected to be initiated by animal curators and keepers because they lead animal care routines. However, employees who work on animal health also play important roles in the Program. In practice there appeared to be variation in who was involved in benchmarking and assessments for each animal. Some employees engaged the Program proactively, while other seemed reluctant to engage, or the species of animals in their care were not well suited to the Program.

Exhibit 6 Employees in the marine life and primate animal areas had the most experience with the Program



Source: Auditor's Office analysis of Oregon Zoo's Quality of Life Program documents (May 2015 – August 2017)

Because of variation in experience, there appeared to be greater need for coordination between groups of employees in some areas of the Zoo than others. Employees in the marine life and primate animal areas had the majority (14 of 20 animals) of experience during the first years of the Program. As a result, they were able to work relatively independently.

For other groups of employees, more coordination with other parts of the Zoo were needed to manage the Program effectively for their animals. This appeared to be the result of inexperience. Those that had more experience appeared to be more comfortable with each step. There were indications that lessons learned with previous animals led to refinements to make it work better in their area.

Ideally, this process of organizational learning could be shared between groups, not just within groups with unequal experience. The most challenging steps of the Program appeared to be those that required coordination between the teams who work on animal care and animal health. Clear roles and responsibilities for those steps is vital for the Program's success.

Scope and methodology

The purpose of the audit was to determine if there were ways to increase the efficiency and effectiveness of the Quality of Life Program. The scope was May 2015 to August 2017. There were three objectives:

- Determine if there were ways to prioritize animals in the Zoo's collection to set realistic expectations for the program
- Determine if roles and responsibilities for the program were clearly assigned
- Determine if there were leading practices to increase the program's QoL assessment capacity

To meet the objectives we reviewed articles and professional literature, analyzed program documents for each of the animals involved in the program, and interviewed employees who were involved in the Program or similar programs at other zoos.

The audit was added to the FY 2017-18 audit schedule. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Recommendations

To improve the Quality of Life Program, the Zoo should:

1. Clarify the Program's purpose and relationship with other animal welfare efforts including:
 - a. Criteria to determine which individual animals should be included in the Program,
 - b. Criteria for animal benchmarks and assessments, and
 - c. Roles and responsibilities among employees.
2. Train employees about how to fulfill their role in the Program.
3. Periodically reevaluate and update the Program to stay current with best practices and lessons learned internally.

Management response

To: Brian Evans, Auditor

From: Don Moore, Zoo Director

Date: 12 November 2017

Re: **OREGON ZOO MANAGEMENT RESPONSE TO 2017 QUALITY OF LIFE AUDIT**

Thank you for the opportunity to respond to your recent audit of Oregon Zoo's leading Quality of Life Program. We appreciate the time and effort invested by you and your staff. Your report captures much of the complexity of operating an AZA-accredited zoo. It should be noted that the 230 AZA-accredited zoos meet the highest level of standards for: Animal welfare, Care and Management; Veterinary Care; and Scientific Advancement. These select zoos represent fewer than 10% of the 2800 exhibitors licensed by the USDA under the Animal Welfare Act. As you may know, "as the science of zoology and aquatic studies grows in knowledge, so too do AZA standards rise to accurately reflect current understanding and modern practices, and to drive continuous improvement in institutions accredited by AZA" (AZA Accreditation Standards and Related Policies, 2018 Edition).

As an award-winning leader among AZA-accredited zoos, with one of the first and finest science-based Animal Welfare programs in the country, we welcome your comments on the Quality of Life program our animal care professionals are developing as we strive for world-class animal care and welfare programming. We are committed to best-possible animal care and welfare for every individual animal of every species in our population every day. The Audit report offers useful recommendations for continuing to improve our world-leading Quality of Life program, and will benefit Oregon Zoo animals as well as animals in other modern zoos which adopt our program goals and standards. We appreciate receiving candid feedback — even if it is sometimes critical — and believe it provides valuable insight into our world-leading programs.

While the report focuses on recommendations for improvement of the Quality of Life Program, we think it is important to note some significant accomplishments that were not highlighted. These accomplishments are the result of effective processes and management practices — and are all the more impressive when you consider that other AZA-accredited zoos and aquariums, as well as government agencies, frequently ask our staff about programs and processes to achieve best-possible animal care and welfare.

AZA accreditation shows a high standard of animal welfare, professionalism and organizational culture

In September 2015, Oregon Zoo was re-accredited by the Association of Zoos and Aquariums. "The Association of Zoos and Aquariums only accredits zoos and aquariums that meet the highest standards in animal care and welfare," said AZA president and CEO Jim Maddy. "When people visit the Oregon Zoo, they can be assured that they are supporting a facility that is a leader in the care and conservation of wildlife." We meet these Standards every day, for every animal.

Prior to the 2015 re-accreditation, our Oregon Zoo was recognized with six of the association's major awards: three for conservation work on behalf of endangered species, two for marketing excellence, and another for environmental efforts in the zoo's day-to-day operations. "Winning six AZA awards over the span of five years is an incredible accomplishment," Maddy said at the time. "Oregonians can

be very proud of their zoo — it's regarded as among the top zoos in the country."

Oregon Zoo just received two more significant awards from our AZA peers in September 2017 – the Top Honors AZA Exhibit Award for Elephant Lands which was based largely on our world-leading elephant care and welfare program, and a Top Honors Conservation award shared with our colleagues at San Diego Zoo, Los Angeles Zoo and other facilities for our California condor care and restoration program. We are proud to be recognized by professional zoologists, veterinarians and other colleagues and peers nationally and internationally for Oregon Zoo's leading animal care, welfare and conservation programs.

The zoo continues to exceed USDA Animal Welfare Act and other standards, as shown by our 25+ years of continuous Accreditation by the Association of Zoos and Aquariums, as we establish and maintain our own high internal standards for exemplary animal care and well-being, and animal health care. (See <https://www.aza.org/assets/2332/aza-accreditation-standards.pdf>)

Our responses to the Audit report's specific recommendations are:

To improve the Quality of Life Program, the Zoo should:

Recommendation 1 – Clarify the Program's purpose and relationship with other animal welfare efforts including:

We believe that the Program's purpose within our overall animal care program is very clear – it is an industry-leading pilot program which helps our professional staff establish our priorities for world-class animal care and welfare. We agree with the Audit's assertion that clarity about the information used to make end-of-life decisions is important to help our employees better understand the Quality of Life process. The quality of life process offers opportunities to monitor and hopefully improve an animal's quality of life but may not be the only tool contributing to the end of life decision. We agree that clarifying the program's role in the ultimate end of life decision process is necessary.

a. Criteria to determine which individual animals should be included in the Program.

Although each species and individual animal may require different criteria as we assess its quality of life, inclusion of all species is what separates professionally-operated, modern AZA-accredited zoos from the other 90% of USDA-licensed facilities. Although all of these facilities also have a requirement for veterinary assessment for only mammals, AZA Accreditation Standards set a much higher requirement for an "extraordinary focus on animal care" (AZA Accreditation Preamble 2018) for all species.

We agree that we can set broad criteria, much like those our husbandry and veterinary professionals use on a daily basis: individual and social behaviors within normal limits or not, appetite and body condition within normal limits or not, health status within normal parameters. Once an animal starts to fall outside of these normal limits, closer scrutiny is warranted, and this is appropriately characterized in the audit report as greater effort by staff and use of resources. We will continue to work with professional colleagues on science-based "triggers" for moving an animal from our routine program of animal care and welfare to the more intensive Quality of Life Program.

And we continue to provide for a Life Worth Living for all of our animals. In addition to our development of qualitative and quantitative metrics to achieve an overall Quality of Life assessment as an individual animal declines, we and other AZA animal care professionals have led the development of another approach to ensure that all individual animals of all species have the best opportunity for a life worth living. Specifically,

AZA zoo and aquarium standards support the premise of five opportunities for all animals, from birth through the death that comes to all living things eventually. “These tenets propose that animals: (1) receive nutritionally complete diets that bring out the natural feeding response and behavior; (2) are afforded comfortable living experiences with choice and control to promote mentally and physically healthy behaviors; (3) experience good physical health; (4) are provided quality spaces to live in with appropriate social groupings that promote natural, species-appropriate and motivated behavior; and (5) develop natural coping skills and avoid chronic stress.” (AZA Accreditation Standards and Related Policies 2018)

b. Criteria for animal benchmarks and assessments

Oregon Zoo, like other AZA Accredited Zoos and Aquariums, has many species and almost 2,000 individuals at any one time in our animal population. This diversity of life forms brings with it a diversity of life histories and biological needs. Criteria for bench-marking needs to vary from species to species, and potentially individual to individual based on our professional veterinary and animal care knowledge, experience and skills, and we do not believe it can be programmatically specific at this early stage of development of Quality of Life programs by Oregon Zoo, veterinary groups like Banfield, veterinary colleges, and our colleagues in other modern zoos.

We appreciate your observation that quantitative assessments would help the program be more objective. As in all animal care programs, for zoo or domestic animals, we expect our Quality of Life Program to depend on both qualitative and quantitative assessments for the near future. As you also observed, senior animals (like senior people) can be physically healthy, at least to a trained observer. Because wild animals have evolved the ability to hide their physical decline from predators, and their relatives in our human care retain this same adaptation, we expect that quantitative tools will grow as we gain data from our own Oregon Zoo endocrine lab and others performing the science of applied animal care. We will certainly be using both qualitative and quantitative assessments in a more robust way in the next iteration of our Quality of Life Program.

c. Roles and responsibilities among employees

The Oregon Zoo’s Quality of Life Program is appropriately characterized as a pilot program in its present form. Historically, quality of life assessments in zoos have been led by veterinary staff who are ultimately responsible for animal care under the regulations of the USDA Animal Welfare Act. Although this is changing to be more collaborative in AZA-accredited zoos, this pilot is appropriately led by veterinary staff.

We are developing an innovative program. We recognize that there is varied experience, knowledge and skills among all of our animal care employees, so we have chosen to expose the appropriate few Oregon Zoo animal care professionals in this pilot phase. As the Program develops, it will focus more of the zoo’s animal care professionals via targeted assessments, subsequent decision-making and coordination of this decision-making across appropriate departments and leadership of the zoo and Metro. We will share the Program as it develops with appropriate staff.

Recommendation 2 – Train employees about how to fulfill their role in the program.

Oregon Zoo and our colleagues within AZA, notably at San Diego Zoo Global and Disney’s Animal Kingdom, have developed leading training programs for zoo professionals.

In terms of end-of-life decision making, we again refer to the AZA Accreditation Standard for veterinary care and euthanasia policies. AZA notes that “This policy should be tailored to the needs of the institution, outlining appropriate procedures and responsibilities for all taxa within the institution’s collection. All paid and unpaid animal care staff should be familiar with this policy.” (AZA Accreditation Standards and Related Policies 2018)

And, we note this phrase from AZA Staffing Standards, “AZA-accredited zoos and aquariums must have a sufficient number of properly trained staff to care for the animals and assure good animal welfare, maintain high quality operations, and work to continually evolve (modernize) the institution. Continuing professional development of staff is required to ascertain that staff is up-to-date with the latest information and best practices.”

The significance of these particular AZA Standards is that staff training programs are required. Those developed by us will be available to all AZA-accredited institutions (and we will surely benefit from staff training ideas if some other institution develops a great training program we can use). We are committed to staff training, whether for daily operations or as professional development, especially as we more clearly define roles and responsibilities of each staff member. Thank you for the observation.

Recommendation 3 – Periodically reevaluate and update the Program to stay current with best practices and lessons learned internally.

Oregon Zoo, like many AZA-accredited zoos, is committed to program evaluation for all programs under the acronym SPIDER (Setting goals, Planning, Implementation, Documentation, Evaluation and Re-adjustment). We agree that, as we grow our pilot program into an established industry-leading program designed to achieve world-class animal care and welfare, we should continue to gather adequate data for evaluation and feedback from staff and our AZA peers. This will help us to focus and affirm the effectiveness of this positive change to our overall animal care and welfare program. The resources put into gathering that information must be balanced against resource availability and the costs and benefits of assessment. We will share our programs and policies with fellow professionals so that we increase their ability to achieve great animal care.

Finally, we note that excellence in animal welfare is the underlying foundation on which all Oregon Zoo and AZA Accreditation standards and practices like the Quality of Life Program are premised and developed. All reasonable concerns regarding the welfare of individual animals or groups are thoroughly assessed and corrected throughout each animal’s life; this is our professional standard and ethic. Our AZA-accredited Oregon Zoo is required to incorporate commonly accepted welfare guidelines and follow a documented process for assessing animal welfare and wellness. In developing our Quality Of Life Program, we lead the industry in this regard and we appreciate your observations and recommendations.



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