HM Government

T-LEVELS

# T Level Technical Qualification in Animal Care and Management

# Occupational Specialism in Animal Management and Behaviour

## Research Project Guide Standard Exemplification Material Distinction

Version 1.1

City & Guilds

| Version and date | Change detail | Section |
|---|---|---|
| V1.0 October 2024 | Approved version | |
| V1.1 March 2026 | Minor amendment to first paragraph | Introduction |

# Contents


**CONTENTS** 3

**INTRODUCTION** 4

**GRADE DESCRIPTORS** 6

**TASK 1 PLANNING AND RESEARCHING** 7

**Task 1a) Research proposal** 8
Candidate evidence – research proposal 8
Commentary 11

**Task 1b) Research action plan** 12
Candidate evidence - research action plan template (Figure 1) 12
Commentary 14

**Task 1c) Research notes** 15

**TASK 2 RESEARCH REPORT** 17
Candidate evidence – research report 18
Commentary 25

**TASK 3 PRESENTATION** 26

**Task 3a) Digital presentation** 26
Candidate evidence – Digital Presentation 26

**Task 3b) Delivery of presentation** 33
Candidate evidence – Delivery of presentation 33
Commentary for 3a and 3b 33

# Introduction

The sample evidence within this document refer to the Occupational Specialism in Animal Management and Behaviour research project. The aim of these materials is to provide centres with examples of knowledge, skills and understanding that attest to a distinction grade. In this document all exemplar evidence attests as examples of performance at the distinction grade boundary. The evidence presented here has been developed to reflect a distinction grade within each task but is not necessarily intended to reflect the work of a single candidate. It is important to note that in live assessments a candidate's performance is very likely to exhibit a spikey profile and the standard of performance will vary across tasks. The Guide Standard Exemplification Material (GSEM) illustrates linear performance across all pieces of evidence at the grade. A distinction grade will be based on a synoptic mark across all tasks.

The evidence in this GSEM is separated into the sections as described below. Evidence is presented against tasks from the research project. Assessors using the GSEM may find it helpful to review this document along with the sample assessment materials (SAMs).

**Task**

This section details the evidence to be submitted for marking and any additional evidence required including any photo/video evidence. Also referenced in this section are the performance outcomes and the evidence will be marked against these when completing the tasks within it. In addition, evidence that has been included or not been included in this GSEM has been identified within this section.

In this GSEM there is evidence from:

- Task 1
- Task 2
- Task 3

**Evidence**

This section includes exemplars of evidence, photo/video recordings of the evidence in production (or completed). This will be exemplar evidence that was captured as part of the assessment and then externally marked by the assessor.

**Word counts**

Typical word counts/page lengths, as indicated in the SAMs, are used as approximates for guidance to support the production of sufficient evidence. The marking will relate to the quality of the evidence produced and not whether the word count/page length has been met and candidates may be under or over the word count without affecting their grade.

**Commentary**

This section includes detailed comments to demonstrate how the evidence attests to the standard of distinction.

It is important to note that the commentary section is not part of the evidence or assessment but are evaluative statements on how and why that piece of evidence meets a particular standard.

# Grade descriptors

**To achieve a distinction, a candidate will typically be able to:**

Demonstrate an excellent level of performance that consistently meets the industry requirements to be able to enter the animal management and behaviour industry to begin work in the occupational area.

Demonstrate highly effective technical skills and techniques to consistently optimise animal health and welfare. Safely carry out routine health assessments and husbandry activities to an excellent quality standard within time constraints.

Demonstrate an excellent understanding of human-animal interaction, consistently applying safe and welfare orientated techniques when handling, restraining and moving animals, adapting them when necessary.

Accurately interpret technical information to be able to plan and prepare equipment and work areas, assess risk and follow safe working methods appropriately when applying practical skills to an excellent standard and within relevant legislation and regulations.

Produce comprehensive plans for the care and monitoring of animals including detailed documentation such as health assessment records, husbandry plans and behavioural observation records.

Demonstrate excellent understanding of the factors that contribute to animals' natural environment, applying excellent technical skills to optimise the animals' environment and health and welfare needs.

Demonstrate excellent understanding of animals' natural behaviour and positive reinforcers, applying excellent technical skills when carrying out behavioural observations and training activities.

Carry out comprehensive planning and research to promote animal welfare in conservation, including thoroughly assessing sources of information for validity and reliability.

Carry out comprehensive analysis and evaluation of research to enable effective presentation of results to targeted audiences.

Consistently use technical terminology accurately in plans, reports and documentation.

# Task 1 Planning and researching

Evidence contributes to the following:

| **Performance outcome(s)** |
|---|
| PO4 Provide information researched on an animal to promote animal welfare and conservation |

| **Evidence** | **Candidate producing** | **Assessor producing** | **Included in this GSEM** |
|---|---|---|---|
| Task 1a - Research proposal | √ | | √ |
| Task 1b - Research action plan | √ | | √ |

## Task 1a) Research proposal

## Candidate evidence – research proposal

**Title of research:**

An investigation into Sumatran Tiger conservation projects to prioritise support from Guilds Zoo.

**Aim:**

The Sumatran Tigers (*Panthera Tigris Sumatrae)* is an endangered species, with numerous organisations working in different ways to conserve them.

As part of Guilds Zoo commitment to conservation, they are planning to support a Sumatran Tiger conservation project.

The aim of this research is to determine which Sumatran Tiger conservation project that The Guilds Zoo should support.

**Objectives of the research:**

- to analyse the Sumatran Tiger ecology, habitat and behaviour
- to identify factors affecting the conservation status of the tiger
- to assess the currents threats to Sumatran Tigers in the wild and the methods and technologies being used to safeguard the population
- to identify key organisations involved in Sumatran Tiger *in situ* conservation
- to identify the direct impact each project has on conservation of the species, including their link with legislation and frameworks to understanding what problems they face
- to examine cultural factors alongside the tiger conservation project, with research into how the conservation organisation engage with local communities
- to identify data on the success rates of the conservation organisations
- to evaluate the effectiveness of the conservation projects run by the identified organisations
- to evaluate all research and data collected to produce an evidence-based recommendation
- to provide the education team with an evidence-based recommendation of a suitable project to support.

**Methodology**

<u>Sumatran Tiger ecology, habitat and behaviour:</u>

- carry out a literature review on existing research studies and scientific papers, including field surveys and observations, which have been completed *in situ* by field researchers
- analyse habitat data, including satellite imagery and habitat assessments.

<u>Conservation status of the tiger, cultural factors and technologies used to safeguard:</u>

- review reports and studies for population trends and habitat loss
- consider land use, human animal conflict and government policies
- investigate habitat reforestation, deforestation and community involvement

- research monitoring methods (invasive and non-invasive)
- review community activities such as education, workshops or outreach programmes.

Key organisations involved in Sumatran Tiger conservation:

- compile a list of national and international organisations involved in Sumatran Tiger conservation efforts
- research mission and goals and conservation activities of the organisations to determine their effectiveness.

Impact from each project and link with legislation and frameworks:

- review project reports, scientific publications and documents from the conservation organisations
- analyse key performance indicators, such as population trends, habitat restoration, education and anti-poaching
- examine how each project works within relevant legislation and conservation regulations and frameworks.

Identification of statistical data and evaluation of the success rates:

- review annual reports from conservation organisations for their key performance indicators
- compare success rates from across the different organisations and projects to identify best practices.

Provide evidence-based recommendations:

- prepare a detailed report and presentation, which summarises the research findings
- provide resources, case studies and supporting evidence to back up the recommendation.

**Sources and their suitability**

| Sources | Topic | Suitability |
|---|---|---|
| Books, websites, scientific journals, research papers, surveys, observations and literature review. | Sumatran Tiger ecology, habitat and behaviour.<br><br>Conservation status of the tiger.<br><br>Cultural factors. | • books more likely to be out of date than online sources<br>• research papers should be peer assessed or from reliable organisations<br>• websites should be government or known company sources not generic encyclopaedia sites<br>• research is most likely to be biased towards whoever is funding the research |
| Population surveys and habitat assessments. | Currents threats to Sumatran Tigers in the wild. | • credible and reliable sources of information should be current |

| | | |
|---|---|---|
| | | • considerations of location of publication – are they UK based? Has translation been a factor? |
| Peer assessed field studies, literature reviews and published reports. | Methods and technologies used to safeguard the population. Statistical data. | • credible and reliable sources of information should be current - field studies often take longer to publish<br>• peer assessed or from reliable organisations<br>• considerations of location of publication – are they UK based? Has translation been a factor?<br>• free from bias - who is funding field research? |
| National and International Zoological collections websites and reports. | Key organisations involved in Sumatran Tiger *in situ* conservation. | • credible and reliable sources of information should be current - Websites are online so should be easier to keep up to date |
| Government reports and international wildlife regulations. | Legislation and frameworks. | • credible and reliable sources of information should be current<br>• considerations of location of publication - government has to be unbiased which is good |

**Techniques to analyse and interpret information:**

- gather and critically analyse relevant information and data about the natural history of the Sumatran Tiger, ensuring bias from the sources of information is taken into consideration
- critical analysis will be carried out through a literature review and validate all relevant information by cross referencing with other sources
- identify and record all sources, ensuring facts and opinions are differentiated by using credible sources
- organise data into usable format, with the use of charts and graphs
- review of data to inform population trends
- compare data, graphs and diagrams for data visualisation.

**Conclusion:**

This research proposal provides a comprehensive review into conservation projects for the Sumatran Tiger. By analysing the ecology, conservation status, threats, cultural factors and the overall effectiveness of a range of organisations involved in Sumatran Tiger conservation, the research produced will provide an evidence-based, informed recommendation.

## Commentary

The candidate has produced a comprehensive research proposal to investigate, analyse and compare Sumatran Tiger conservation projects to prioritise support. The candidate has given detailed and relevant aims and objectives for the research based on the task requirements, showing excellent consideration of the planning and research requirements, process and purpose. For example, the candidate has included a point to evaluate all research and data collected to ensure their research is evidence-based to provide a thorough recommendation

The candidate has considered a wide range of sources to gather information for their research and thoroughly assessed their suitability. For example, population surveys being used to provide information on currents threats to Sumatran Tigers in the wild can provide current credible and reliable information and data. Additionally, the candidate has identified that the location of the publication needs to be considered due to potential translation considerations, therefore demonstrating thorough assessment of the suitability of the sources for validity and reliability.

The candidate has given excellent consideration of the techniques needed to collect and analyse the information and data by providing detailed methodologies and considerations to show thorough understanding of data and information, including relevant ways to interpret different types of gathered data and information. For example, the need to critically analyse information and data, taking into consideration bias from the sources of information and the need to separate fact from opinion.

## Task 1b) Research action plan

**Candidate evidence - research action plan template (Figure 1)**

| **Candidate name** | **Candidate number** |
|---|---|
| Sample candidate | GC12345 |
| **Centre name** | **Centre number** |
| Sample centre | 12345 |

| **Topics to be researched** | **Sources of Information** | **Search criteria** | **Timelines** |
|---|---|---|---|
| Sumatran Tiger ecology | Books, websites, scientific journals, research papers, surveys, observations and literature review. | Ecological role of the Sumatran Tiger:<br>1. relationship between humans<br>2. environment<br>3. population loss<br>4. growth impact. | 30min overall<br>1. 15 min<br>2. 10 min<br>3. 5 min |
| Sumatran Tiger behaviour | | Typical behaviours such as: feeding/hunting, communication, social, reproductive, locomotion. | 30min |
| Sumatran Tiger habitat/location | | Geographical information from 2000 to most current statistics.<br>Biodiversity including fauna and flora. | 30min |
| Cultural factors | | 1. Researchers and conservation organisations | 30min<br>1. 20 min<br>2. 5 min |

| | | | |
|---|---|---|---|
| | | 2. Relationship between indigenous people and the Tiger.<br>3. Human/animal conflict. | 3. 5 min |
| Current threats to the Sumatran Tiger | Population surveys and habitat assessments. | Examples of threats.<br>Impact from threats.<br>Population data. | 30min |
| Key *in situ* organisations involved in Sumatran Tiger conservation | Conservation organisation websites, reports and published papers. | Identification and description of organisations.<br>Purpose of the organisation.<br>Project goals.<br>Effectiveness of projects.<br>Challenges faced by project. | 60min<br>(30 mins for each organisation) |
| Conservation methods used to safeguard the Sumatran Tiger population | Peer assessed field studies, literature reviews and published reports. | Examples of methods used by each organisation.<br>Justification of each method<br>Impact from each method. | 40min<br>(20 mins for each organisation) |
| Conservation technologies used to safeguard the Sumatran Tiger population | Peer assessed field studies, literature reviews and published reports. | Examples of technologies used by each organisation.<br>Justification of each technology<br>Impact from each technology. | 40min<br>(20 mins for each organisation) |
| Legislation | Government reports and international wildlife regulations. | Examples of relevant legislation.<br>Impact on Sumatran Tiger conservation.<br>Factors for conservation organisation to consider. | 40min<br>(20 mins for each organisation) |
| Framework | Government reports and international wildlife regulations. | 1. Examples of relevant frameworks.<br>2. Impact on Sumatran Tiger conservation.<br>3. Factors for conservation organisation to consider. | 30min<br>1. 15 mins<br>2. 10 mins<br>3. 5 mins |
| | | | Total 360minutes (6hours) |

## Commentary

The candidate has completed a comprehensive action plan, which details relevant topics in relation to the conservation status of the Sumatran Tiger. The topics to be researched link to the aims and objectives from Task 1a and achieve the aim of the task. For example, the candidate has linked the aim of determining which conservation project to support to the topics of researching *in situ* organisations involved in Sumatran Tiger conservation and the methodologies used.

The candidate has identified key search criteria to research to follow their identified objectives, achieve the aim of the research project and carry out research within documented time frames. For example, the candidate has used comprehensive phrases within their search criteria which will enable a comprehensive analysis of research.

The timings within the action plan demonstrate an excellent understanding of the time taken to plan and undertake the research and how to plan and prioritise the steps to carry out the research. For example, the candidate has allocated more time to research key *in situ* organisations involved in Sumatran Tiger conservation compared to Sumatran Tiger ecology, demonstrating an excellent understanding of the research/brief requirements.

## Task 1c) Research notes

The research notes provided are one side of A4 exemplar notes of the expected standard to be produced by the candidate but are not necessary to be produced for marking.

**Sumatran Tiger Ecology,**

- Ecological role of the Sumatran Tiger Including: relationship between humans, environment and population loss and growth impact. (400 currently estimated in wild)
- 861 species of plants and animals (June 2023) - Most critically endangered.
- 'Flagship species' plays critical role in forest ecosystem. Without them = imbalanced on plants and animal species. (e.g. overgrazing)

**Cultural factors**

- Tiger encounters occurrence = populated villages next to forests and rivers.
- Factors impacting Tiger relationship with people: attitude to the Tiger, emotions, spiritual beliefs, risk of attack and need for retaliations.
- some tribal beliefs include: prohibition of eating carnivorous animals, spiritual connections, guardians of customary laws (weretigers).
- Development of land for: Fisheries, Transportation, Forest Harvesting, Intensive and traditional agriculture, recreation and education.

**Current threats**

- Loss of habitat – (estimated 300,000 Ha lost in 2000, 2012 - 1millionHa lost and 2015 -450,000Ha lost) caused by: logging, agricultural use, degradation, oil palm and rubber plantations, mining, expanding villages (encroachment), retaliation killings.
- Fragmented forest leads to inbreeding due to isolation.
- body parts (whiskers, teeth, bones, and claws) for traditional Chinese medicines, souvenir, jewellery, antique.
- Canine teeth and skins are 'trophy' items.
- Lack of law enforcement and weak penalties
- Slash and burn of peatland for agricultural land to grow palm oil and rubber causes increased carbon / impacting climate change

**Restori Ekosistem Riau – Kampar peninsula and Padang province (East)**

- work with communities and support small businesses to protect traditional activities such as fishing and gathering of honey
- Educate on long term sustainability and importance of the environment and biodiversity conservation. While also creating economic and social benefits for local communities
- collaboration agreement established December 2016 to coordinate/support issues, including fishing rights, maintaining/improving fish habitats/ catches, reporting of fish harvests and sustainable fishing practices.
- reduce the use of slash and burn farming practices, providing alternative methods of land preparation to produce food crops.
- 40,000 people live around the RER areas
- reduce threat of poaching and hunting - protection buffer and ranger patrols provided
- Global Tiger day 29th July – education.
- Works with Fauna and Flora International (NGO) conserve threatened species and ecosystems using sustainable solutions.

- Granted Ecosystem Restoration Concession Licence in 2013 (from Indonesian government) - = further engagement with community and opportunities to monitor and protect in allocated environment.
- government initiated SWTS (Sumatra wide Tiger survey) 2007-2009 across 9 regions of Sumatra, 2nd SWTS in 2010 for status of Indonesia's 2010 National Tiger Recovery Program (NTRP).
- Dharmas Raya Sumatran Tiger Rehabilitation Centre (PR-HSD) – rehabilitated Corina

# Task 2 Research report

Evidence contributes to the following:

| Performance outcome(s) |
|---|
| PO4 Provide information researched on an animal to promote animal welfare and conservation. |

| Evidence | Candidate producing | Assessor producing | Included in this GSEM |
|---|---|---|---|
| Research report | √ | | √ |

## Candidate evidence – research report

**Evaluating projects involved in Sumatran Tiger conservation for the purpose of providing zoological support.**

**Introduction**

The Sumatran Tiger is a subspecies of the genus, *Panthera tigris* which is a critically endangered species found in Indonesia, on the sixth largest island in the world, Sumatra. The island consists of a number of different habitats including: lowland, freshwater and peat swamp forest. The island is home to 861 species of plants and animals, including 400 Sumatran Tigers. Causes of the critically endangered status are due to habitat loss, fragmented forests and human-animal conflict. The Tiger has had to adapt their behaviours in the search of food as their habitat is being destroyed to make way for agricultural use, roads and buildings. The Tiger is now encountering livestock, pets and on occasion, people much more frequently.

The Sumatran Tiger is an essential species, which plays an important role in the forest ecosystem. If the Tiger becomes extinct, the natural prey species will increase which will negatively impact the growth of plants and the availability of food for other species.

The Tiger plays a crucial role in disease control and natural selection by hunting vulnerable, ill or weak prey animals. This ensures a healthy and thriving population and reduces the risk of disease.

This report will evaluate the purpose, impact and effectiveness of these two conservation projects:

**Restori Ekosistem Riau (RER), a Non-Government Organisation (NGO) project** and **ZSL Kelola Sendang project**.

The report will consider the methods and technologies both projects have used since 2000, the overall effectiveness will be evaluated to provide a recommendation for which project The Guilds Zoo and Education Team should support.

**The role and purpose of projects involved in the conservation of the Sumatran Tiger:**

- **RER**: provide protection around East Sumatra and enable ranger patrols to minimise threat of poaching and hunting. They promote education and the importance of the Sumatran Tiger through Global Tiger day. They also work with other NGOs, such as Fauna and Flora International whose goals are to conserve threatened species and ecosystems in the South-West region of Sumatra. The mission of RER is to encourage the use of sustainable solutions which they support by carrying out a government-initiated, Sumatra Wide Tiger Survey (SWTS). The survey is in place to update the status of the Sumatran Tiger in Indonesia's 2010 National Tiger Recovery Program (NTRP).
- **The ZSL Kelola Sendang project** has been developed by Zoological Society London (ZSL)**.** This *in situ* conservation project is situated in South Sumatra and works with the Indonesian government, working in a protected area where 10% of the Tiger population can be found. This project works towards a more sustainable production of resources, promoting conservation and successfully restoring 440,000 hectares (Ha) of land. They work with 21 villages, promoting more sustainable

livelihoods, building up environmentally friendly methods for farming, as well as eight new businesses to encourage the community to be self-sufficient and less reliant on natural resources. This project has also encouraged community-based fire prevention, in the aim to reduce and prevent slash and burn methods for clearing land.

**Natural history and adaptations**

During a study carried out by M.L Allen in 2020 using several years of camera trap footage, Tigers in the wild were observed to be active during the day and their territories overlapped with the habitats of natural prey species. In this study, researchers concluded the Muntjac Deer spent more time in Tiger territory, however the Tiger showed a preference for a diet of Wild Boar, Pig -Tailed Macaques and Sambar Deer, though only around 10% of their hunts were successful.

Males are on average 30kg larger than females, with females weighing around 110kg. They are a solitary species, communicating through aggressive roars. The roars can be heard over 3km away. Their snarls, hisses and 'chuffing' sounds are signs of contentment. They only interact with another Tiger during breeding season. A female Tiger, usually more territorial than a male, will communicate her interest in reproducing through scent/urination on plants within her territory. A male's territory usually overlaps several females, which he will patrol and protect against any intruding males.

After a gestation period of 103 days, a female Sumatran Tiger will give birth to two to three cubs, though usually only one or two will survive to two years of age. At birth they are born blind and helpless, relying only on the mother for parental care, the male plays no part in rearing cubs and will defend his territory against them should he have any interaction with them.

The cubs will become independent from 18 months of age, with a male cub leaving to locate a new territory quicker than a female cub. Habitat loss impacts the ability for males to locate a female in oestrus, and cubs establishing their own home ranges without risking encountering people.

**Legislation and frameworks impacting conservation projects**

In 2013, the United Nations Convention on Biological Diversity listed illegal wildlife trade as a serious crime. This enabled conservation organisations working *in situ* and local communities supporting conservation efforts to ensure law enforcement was taken seriously against poachers, smugglers and anyone committing unlawful killing of a Tiger. Both projects work closely with the Indonesian Government to fulfil their conservation mission, however the ZSL Kelola Sendang project also has support from the UK Government.

The International Union for the Conservation of Nature (IUCN) work with Species Survival Commission (SSC) to provide scientific advice to support the conservation organisations, government agencies and NGOs. They set policies and guidelines which help with global conservation activities.

The Indonesian Government has also carried out an international agreement with Convention of International Trade in Endangered Species (CITES), who have classified the Sumatran Tiger as appendix 1. This means no commercial trade is authorised under any

circumstances and there are strict regulations on the conservation and management of the species.

In Sumatra, the Indonesian Government have also passed laws on wildlife protection, forest conservation and protected area management, such as the Conservation of Biological Resources and Ecosystems 1990.

**Conservation status of the Sumatran Tiger**

The IUCN uses knowledge gained from research to carry out estimates of the Tiger population to assess the extinction risk of the species. The IUCN red list categorises the risk level of the Sumatran Tiger as critically endangered. However, from 2008, the IUCN began to categorise all subspecies of Tiger together. This resulted in downgrading their risk assessment listing them as endangered. There is the acceptance that the Sumatran Tiger population has not yet recovered sufficiently to be removed from the critically endangered category.

**Population dynamics since the year 2000**

In 2000, the estimated population figures from Morgan. R. 2014 was recorded at 400 individuals. Estimated population from IUCN data show that between 2003-2007, there were between 254 – 413, though these figures are estimates.

Between 2007-2009 the first SWTS was carried out by the Indonesian ministry of Environment and Forestry, Non-Government Organisations (NGOs) which is shown in the grid cells below *(See fig 0).*

Findings from this research, showed signs of Tigers being present in 206 of the grid cells. These signs include faeces, footprints and Tiger claw/scratch marks on trees.

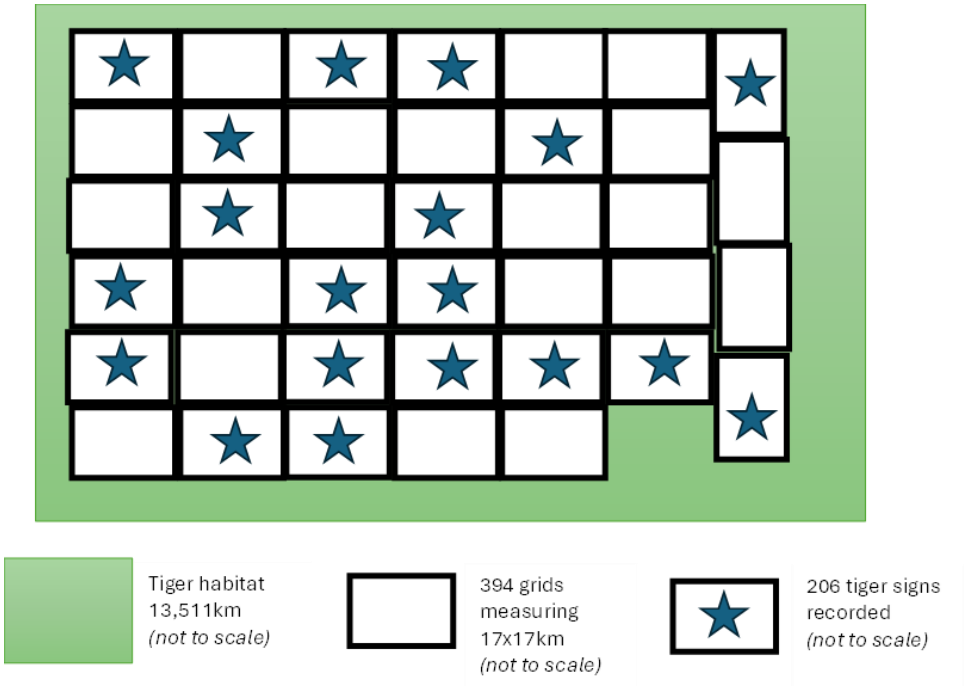


*Fig 0: visual representation of the Sumatra Wide Tiger Survey*

In 2008, population numbers increased to around an estimated population 441-579 across Sumatra.

Between 2008-2017, data on habitat and footprints suggests a decrease in the Sumatran population by 10%.

In 2015-2021 the IUCN reported an estimated increase of 40% in the wild population of Tigers in the protected areas of project sites. Kampar Peninsula is one of these 12 Tiger conservation sites and is an area which Restori Ekosistem Riau (RER) supports.

In 2023, results in Sumatra showed an increase of the Tiger population and 128 Sumatran Tigers were identified. This was following the implementation of The National Tiger Recovery Plan. (*See fig 1*).

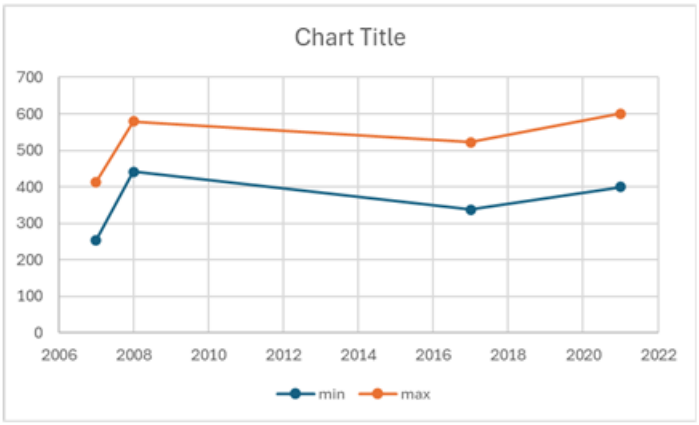


Fig 1 – Population dynamics of the Sumatran tiger since 2006

**Reasons for the change in population**

Both projects are working against the threats to the Sumatran Tiger population which include agricultural factors (palm oil and rubber plantations), mining and development of villages. As the population of people increases, so does their need for space and land, causing people and livestock to live closer to Tiger territories. Sumatran Tigers take advantage of easy access to livestock due to this loss of habitat and natural prey, resulting in livestock owners taking action and killing Tigers to protect their livestock.

Slash and burn methods are used to clear forests for the use of palm oil and rubber plantations which reduces the Tiger's habitat. This also impacts climate change. The figure below shows the amount of habitat lost since 2000.

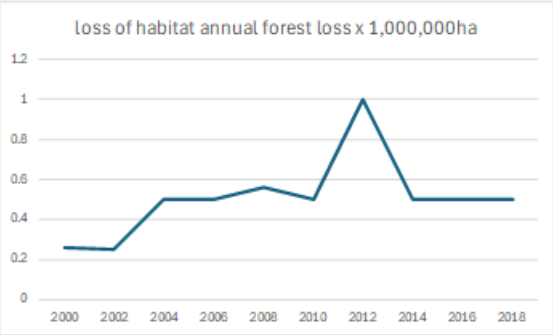


*Fig 2: Loss of Sumatra tiger habitat since 2000*

Both projects focus their efforts to reduce deforestation, which can cause individuals to become isolated from each other. This isolation can lead to a risk of inbreeding, and reduces the genetic pool of the Tiger, causing an impact on their survival.

Cultural factors also impact the survival of the Tiger, research by RER stated that Tiger encounters occurred where villages were more populated and next to forests and rivers. Factors which impacted the relationship between Tiger and people included attitude to the Tiger, spiritual beliefs of people, emotions and risk of livestock attack, and the need to take action.

Some tribes in Sumatra prohibits eating animals which hunt, such as the Tiger, and there is a belief that ancestral souls are embodied in Tigers who are guardians of customary laws. Despite this belief, the Tiger is hunted for its body parts, whiskers, teeth, bones, and claws are used in traditional medicines. Canine Teeth and skins are collected as 'trophy' items. Most of the body parts of the Tiger are exported on the black market despite the Tiger being a protected species. This is due to the lack of law enforcement and weak penalties provided to anyone caught carrying out these wildlife crimes, means the Tiger is still at risk of extinction.

**The impact of conservation projects, methods and technologies**

In 2013 RER was granted an Ecosystem Restoration Concession license from the Indonesian Government. This enabled them to engage with local communities, monitor local wildlife/plants, provide protection and patrol units to the species within their project area. RER shared camera trap footage showing the successful release of the Tigress 'Corine' looking healthy and active 2 years after being rescued, rehabilitated and released by the Dharmasraya Sumatran Tiger Rehabilitation Centre. Also, in 2015 RER worked closely with Wildlife Conservation Society to significantly increase the protected area from 20,123 hectares to 150,000 hectares. Therefore, reducing the fragmentation of the Tiger habitat giving them safer access to food resources and shelter.

A Forest Health Assessment carried out in 2019, provided evidence that the forests within these protected areas are becoming healthier, which in turn benefits the Sumatran Tiger.

In 2021, RER set up an eco-research lab, to enable more field surveys to be carried out. The use of 32 transects and 220 camera traps enabled precise data to be collected, however issues occurred with expensive electrical equipment due to the acidic and moist peat swamps in East Sumatra.

The ZSL Kelola Sendang project carried out Sumatran Tiger occupancy surveys within their conservation areas in June and July 2017, however there were no signs of any Tigers. They continued to use technologies such as camera trapping, ground truth mapping and drone mapping along riverways. This enabled them to monitor natural prey species, such as Tapir, Wild Boar, Sambar Deer, Mouse Deer and Long-Tailed Macaque. This research shows a healthy population of prey species. The ZSL project planted corridors of trees between forests to reduce fragmented populations and identified areas requiring more support to prevent threats to the Tiger, which included geographic, ecological and social information through surveying communities near Tiger territory areas. These surveys showed which areas held the least tolerance towards Tigers. Through *ex situ* work, ZSL has helped support conflict resolution and the production of official Indonesian guidelines for the management of conflict between Tigers and people.

**Conclusion**

To determine which project Guilds Zoo should support, it is important to evaluate the effectiveness of both projects, their impact on conservation efforts, community engagement, sustainability and how each project addresses the threats to the Sumatran Tiger.

RER focus their efforts on protecting habitat, they have received official recognition from the Indonesian Government with the provision of the ERC license and show commitment by working with other NGOs, using and sharing resources and information. They have increased the protected area and have worked successfully with local communities.

However, the ZSL project also focuses restoring habitat and community engagement, having successfully restored more protected land, they use advanced technology and links with *ex situ* organisations to identify key areas for promoting their goals in conservation.

Both projects provide valuable support in the ongoing conservation efforts for the Sumatran Tiger, with numerous strengths within their projects.

According to the findings of my research project which are summarised in the graph below (see figure 3). I would recommend that RER should be the project that Guilds Zoo supports. This is because RER is more effective in their conservations such as providing education and cultural support to local communities, the direct impact to the Sumatran Tiger which has shown to successfully increase the population and the resource for data focused research such as using the using the eco lab facility to gather information on the Sumatran Tiger population.

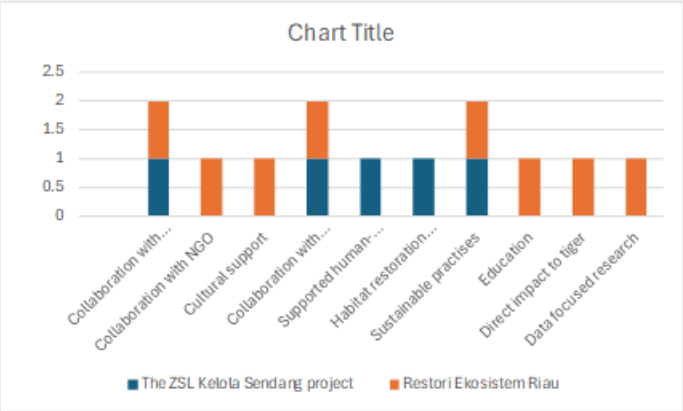


*Fig 3: Summary of influencing factors*

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## Commentary

The candidate has showed excellent knowledge and understanding of the projects involved in the conservation status of the Sumatran Tiger. The research report provides comprehensive discussion of the role and purpose of organisations and projects, natural history of the Tiger, changes in population dynamics and technologies used within the conservation projects. Their knowledge and understanding of the conservation projects and conservation status demonstrates the application of highly relevant links to the research findings. For example, the candidate has included statistics and references to the M.L Allen study in 2020 to reinforce how the Tiger's behaviour and adaptations link to their environmental needs required for effective conservation.

The candidate has produced a well-structured research report including clear and logical headings, with a comprehensive review and evaluation of the projects enabling them to provide suitable information to Guilds Zoo. For example, the use of headings throughout the report which divide the information researched and give clear structure and function to the report, such as the conclusion section which is supported with the use of a graph to represent their findings.

The candidate has given a comprehensive analysis and evaluation of the research they carried out to support the presentation of results. The candidate uses reliable data sources such as the IUCN Red List of Threatened Species and Zoological Society of London to support their analysis. They have used statistical data using appropriate charts for effective visualisation, such as the visual representation of the Sumatra Wide Tiger Survey. The candidate provides detailed reasoning to make a suitably justified recommendation which is supported by relevant and reliable data.

# Task 3 Presentation

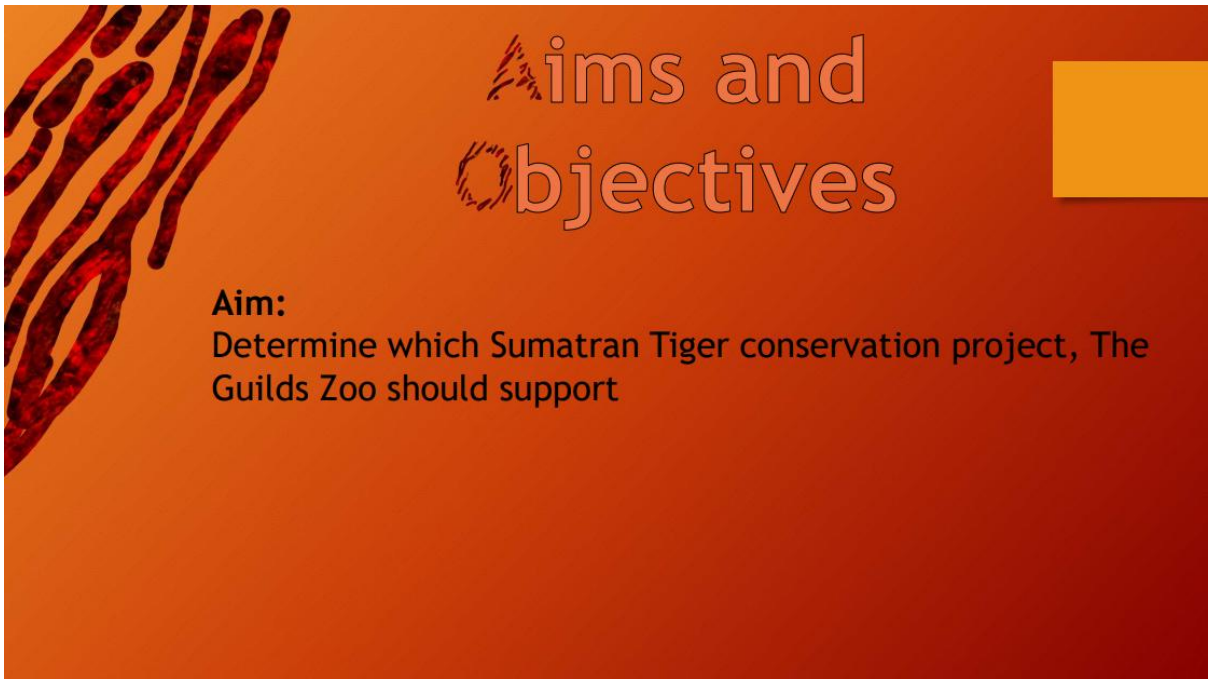
Evidence contributes to the following:

| Performance outcome(s) |
|---|
| PO4 Provide information researched on an animal to promote animal welfare and conservation. |

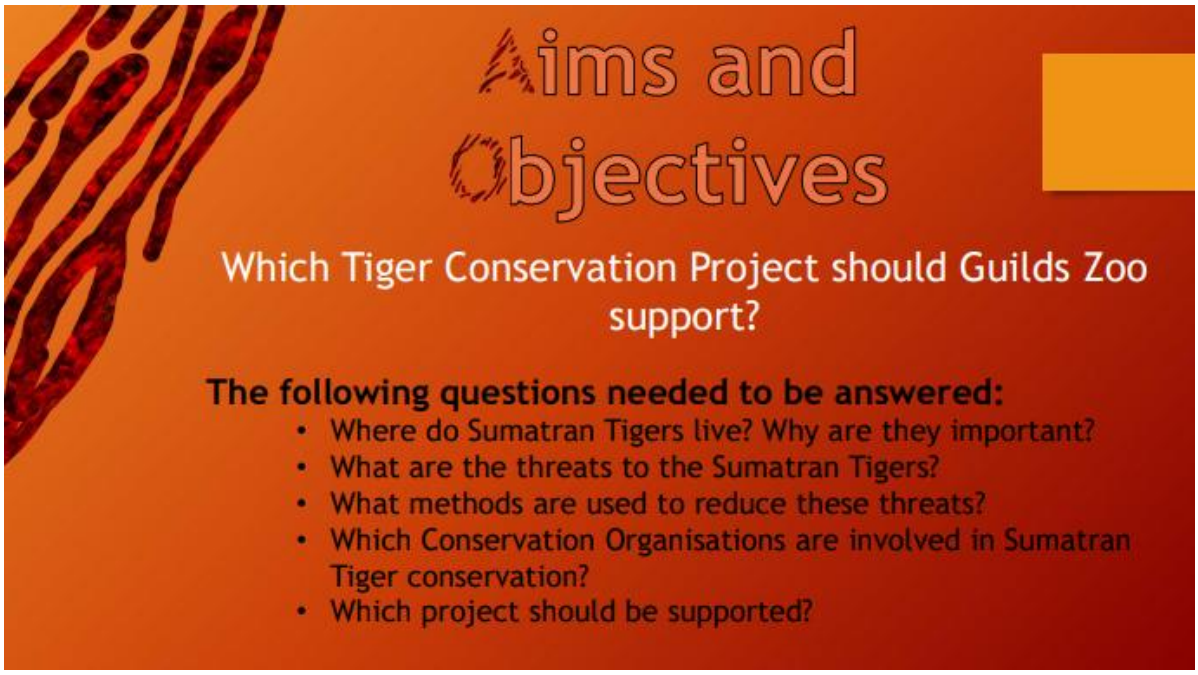
| Evidence | Candidate producing | Assessor producing | Included in this GSEM |
|---|---|---|---|
| Task 3a – Digital Presentation | √ | | √ |
| Task 3b – Delivery of presentation | | √ | √ |

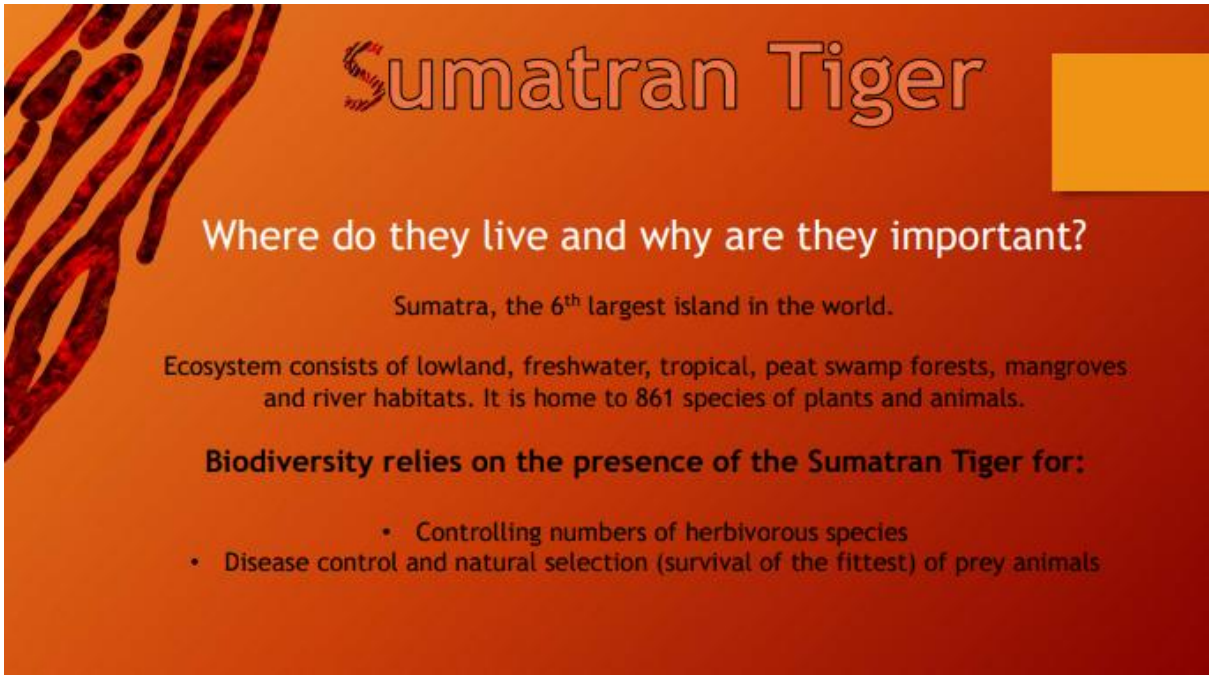
## Task 3a) Digital presentation

### Candidate evidence – Digital Presentation


Aims and Objectives
Aim:
Determine which Sumatran Tiger conservation project, The Guilds Zoo should support

Aims and Objectives
Objectives:
• Analyse Tiger ecology
• Identify factors affecting conservation efforts
• Assess current threats
• Identify key organisations, legislation and frameworks
• Consider cultural factors
• Analyse statistical data
• Evaluate the effectiveness of the projects


Aims and Objectives
Which Tiger Conservation Project should Guilds Zoo support?
The following questions needed to be answered:
• Where do Sumatran Tigers live? Why are they important?
• What are the threats to the Sumatran Tigers?
• What methods are used to reduce these threats?
• Which Conservation Organisations are involved in Sumatran Tiger conservation?
• Which project should be supported?


Sumatran Tiger
Where do they live and why are they important?
Sumatra, the 6th largest island in the world.
Ecosystem consists of lowland, freshwater, tropical, peat swamp forests, mangroves and river habitats. It is home to 861 species of plants and animals.
Biodiversity relies on the presence of the Sumatran Tiger for:
• Controlling numbers of herbivorous species
• Disease control and natural selection (survival of the fittest) of prey animals

# Sumatran Tiger

## What are the threats to the Sumatran Tiger?

**Agriculture and Deforestation**

- Fragmented forests
- Loss of habitat and territory for palm oil and rubber plantations
- Human-animal conflict (retaliation killings)

**Poaching**

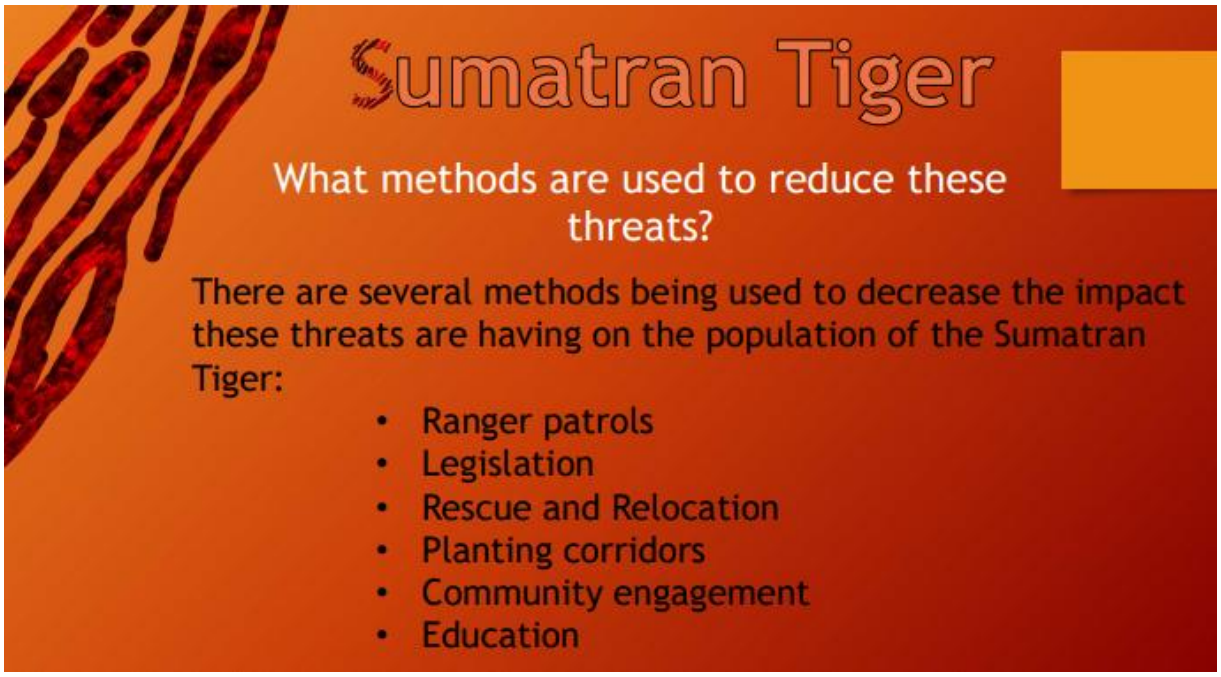
- Hunted for teeth, bones, whiskers and claws for traditional medicines
- Skins and body parts collected as trophies

**Inbreeding**

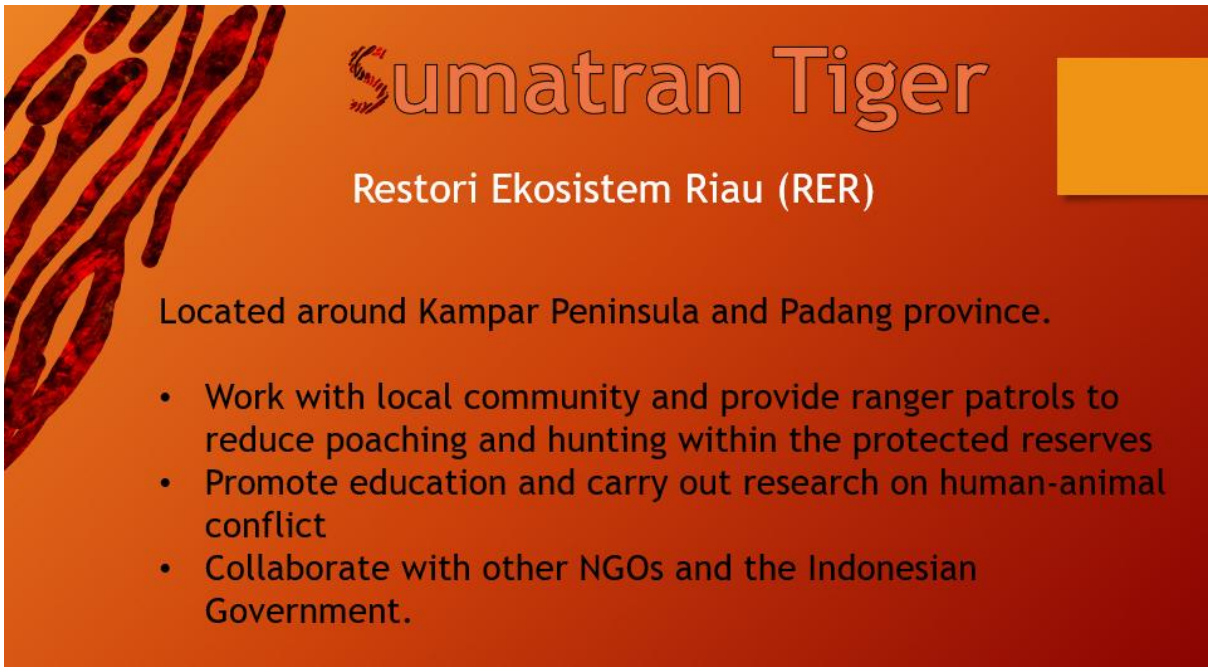
- Genetic diversity compromised
- Weakened immune system, susceptible to disease

**Population Dynamics** (minimum) of the Sumatran Tiger and Annual loss of Habitat (x 1,000,000Ha)

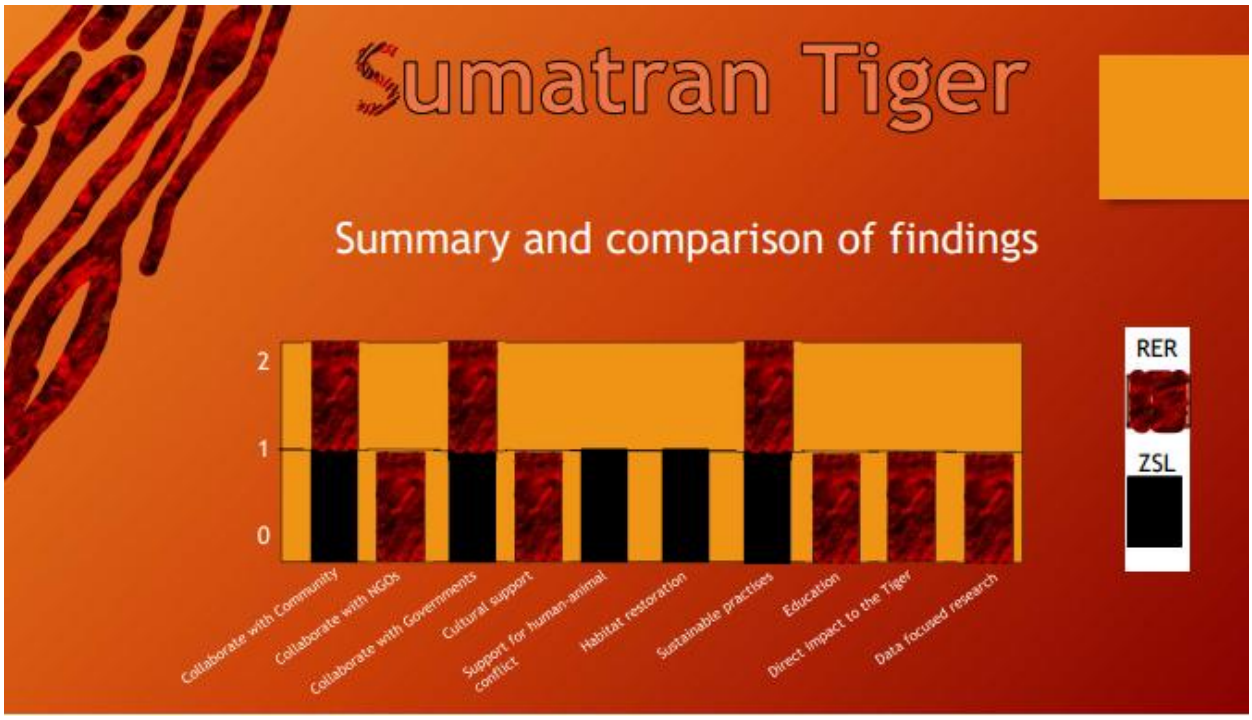
The greatest period of decline of the Tiger population also coincides with the greatest loss of habitat (2010-2014)


Sumatran Tiger
What methods are used to reduce these threats?
There are several methods being used to decrease the impact these threats are having on the population of the Sumatran Tiger:
• Ranger patrols
• Legislation
• Rescue and Relocation
• Planting corridors
• Community engagement
• Education

Sumatran Tiger
Which Conservation Organisations are involved?
There is lots of work being carried out *insitu* and *exsitu* to decrease population decline.
The two key projects being considered for support:
1) Restori Ekosistem Riau (RER)
2) (ZSL) Kelola Sendang project


Sumatran Tiger
Restori Ekosistem Riau (RER)
Located around Kampar Peninsula and Padang province.
• Work with local community and provide ranger patrols to reduce poaching and hunting within the protected reserves
• Promote education and carry out research on human-animal conflict
• Collaborate with other NGOs and the Indonesian Government.

Sumatran Tiger
(ZSL) Kelola Sendang project
Project focuses on the restoration of habitat in South Sumatra, home to 10% of the Sumatran population (+/- 50 animals).
• Promotes sustainable land use and works with local communities encouraging environmentally friendly methods for farming
• Supporting new business ventures which promote sustainability
• Reducing slash and burn methods of land clearing.


Sumatran Tiger
Summary and comparison of findings
2
1
0
RER
ZSL
Collaborate with Community
Collaborate with NGOs
Collaborate with Governments
Cultural support
Support for human-animal conflict
Habitat restoration
Sustainable practises
Education
Direct impact to the Tiger
Data focused research

Conclusion
Which Tiger Conservation Project should Guilds Zoo support?
Both projects provide valuable support in the ongoing conservation efforts for the Sumatran Tiger, with numerous strengths within their strategies.
Overall, influencing factors such as **collaboration with government** and the **community**, as well as **sustainable practises** determines that **Restori Ekosistem Riau** should be the project Guilds Zoo supports.

## Task 3b) Delivery of presentation

### Candidate evidence – Delivery of presentation

AMB_Research_Task 3_Distinction.mp4

### Commentary for 3a and 3b

The candidate has created an effective digital presentation of their research into the conservation needs and status of the Sumatran Tiger and relevant information to deliver to the Guilds Zoo. They have included comprehensive information about the ecology, current threats and conservation requirements for the Tiger to support their summary and comparison of the two conservation projects. The candidate has shown excellent consideration of their target audience by consistently using technical terminology and visual analysis of data and graphs from their research to enable an engaging and effective presentation.

The digital presentation is comprehensive with a clear structure to support their delivery of the presentation to the Guilds Zoo staff, with a relevant title, clear aims and objectives of the research and a clear reflection of the findings of the research report. To further develop their presentation and delivery, the candidate could have improved the structure of the presentation by introducing the conservation projects in an earlier slide which would have provided additional context of the effectiveness of the conservation projects to the Guilds Zoo staff.

The candidate delivered their presentation with clear consideration of tone and speed, demonstrating excellent presentation and time keeping skills. The candidate displayed excellent consideration of the target audience, the effectiveness of delivery and engagement of the presentation. For example, the delivery was to a high-quality standard with the candidate effectively using the slides as prompts for their presentation rather than reading from them. The candidate maintained good eye contact with the audience whilst they presented efficiently within the time constraints.

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