

The Greater one-horned
Rhíno

Conservation
Teaching Tool Kit



Rhino

Conservation

Teaching Tool Kit

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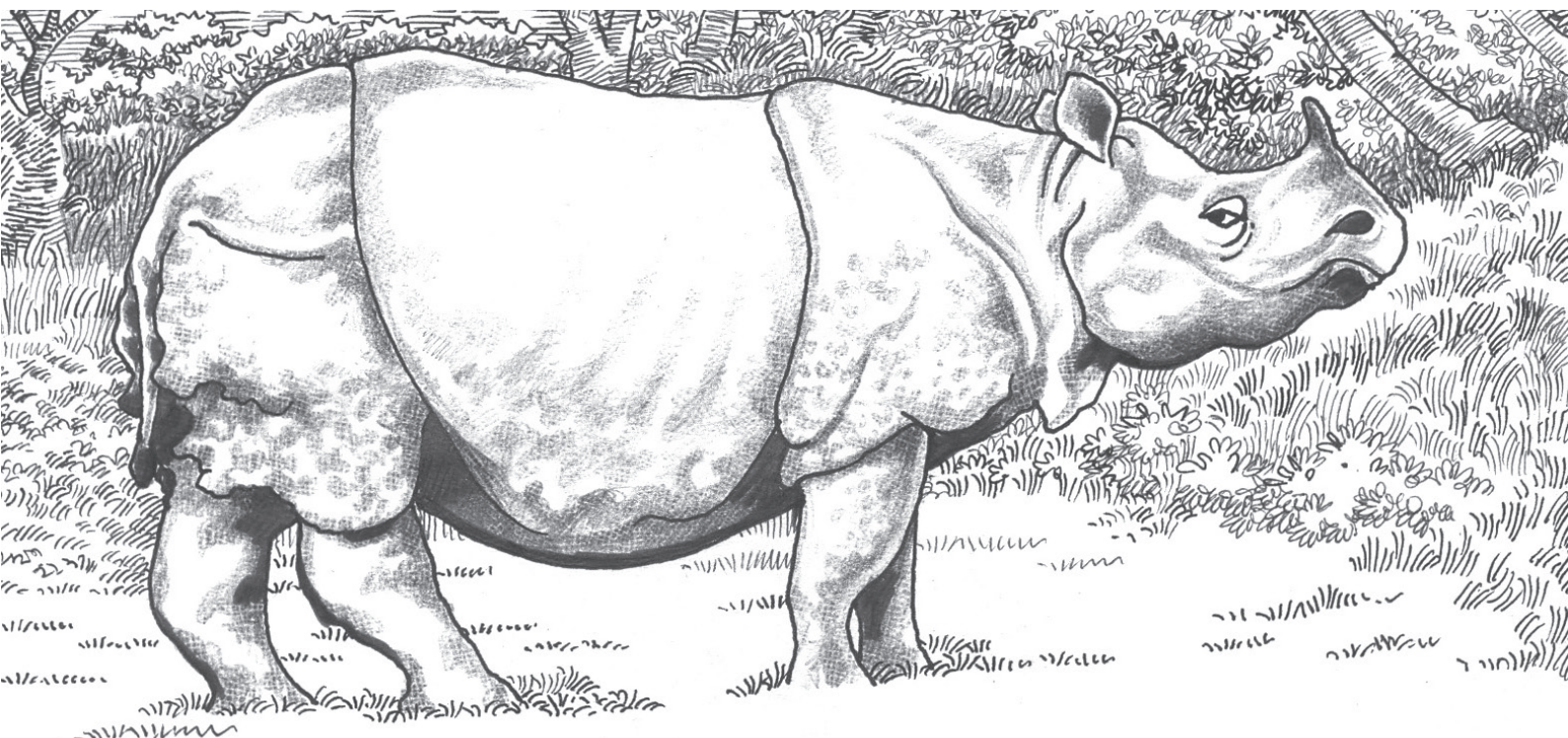
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Teaching tool kit - how best you can use this

The *Rhino Conservation Teaching Tool Kit* consists of four sections featuring The Greater one-horned rhino conservation, which can be used as a medium for conveying a wide range of active learning techniques for both experienced and casual educators. The *Rhino Conservation Teaching Tool Kit* provides education about Rhino in general, its conservation issues, threats and creates interest among students and other target groups to contribute at the individual level to help protect them and their habitats.

The aim of this Tool Kit is to translate scientific data about the Greater one-horned rhino from difference sources such as research articles on rhinos, IUCN reports and Rhino conservation Action plans into stimulating concepts and messages that appeal to stakeholders and connect with their emotions and personal benefits.

Included in the materials are basic facts about the Asian and African rhino species. It also includes assessment tools, basic taxonomy, Rhino behaviour and biology, distribution range of Asian rhino, threats, status and recommendations for conservation.

The last unit exercises help people to understand the conservation needs and activities to help participants commit themselves to contribute for the conservation of Rhino conservation.

The approach in this Tool Kit is to teach and to attract non-traditional as well as traditional educators to adopt new teaching techniques and activities, which are more effective in influencing comprehension, retention and behavioural changes. In addition to the teaching tool kit, educational packets featuring Greater one-horned rhino are used during the programme. Thus the methodology involves a combination of tools, a teaching tool kit, educational packets with booklet, masks, stickers, placard, etc., which are useful in teaching different target audiences. The activities will be indoors and outdoors, informative, interactive and fun. Only a few basic supplies (other than the Rhino packet) are needed to supplement this teaching tool kit. Some activities are designed as handouts that can be removed from the kit and duplicated. There is no need for a projector or any other 'technology' to use this material although presentations using projector can be included if one is available. The teaching tool kit is designed in such a way that only minimum expenditure is involved to plan an education programme.

The overall objective is to impart knowledge about the rhino and its conservation and to bring about attitudinal change among students and other target groups towards conservation of the species. To assess the attitudinal change, evaluation or assessment methods are included in the teaching tool kit. These evaluation techniques are suitable to use with a wide range of audience of different age groups, literate and illiterate. Read the section "Introduction" before you go through the activities so that it will be easy to relate one unit with another.

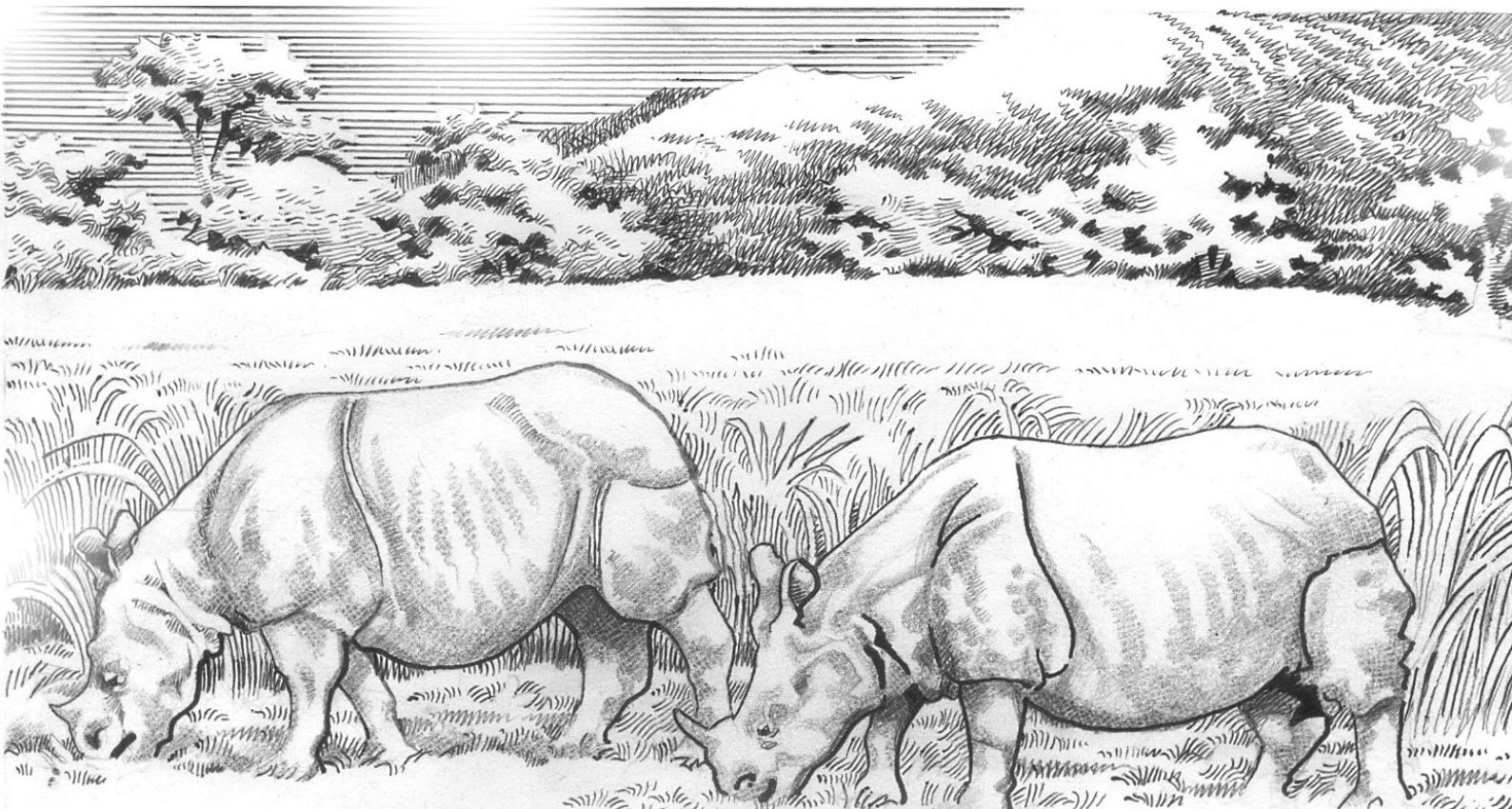
1. Assessment tools for educators

Assess your audience

What do they know and what did they learn?
How to find out?

Assess your audience

This unit introduces two evaluation methods to assess the knowledge base of your audience about rhino. The first method, brain map or concept map, is to test the ability of the brain to relate different words and concepts to a central theme, the rhino. The second method, attitude assessment is to assess the tendency of an individual or a group towards a certain idea, subject or situation. Depending on the availability of your time and space, attitude assessment can be tried in different ways. Read the instructions and keep the materials ready before you start the assessment. Explain the objective of the assessment for better result.



Assess your audience

What do they know and what did they learn? How to find out?

Introduction

As educators, we need to know whether what we teach is effective or not. Depending on our goals, we should have a means of measuring not only acquisition of facts about the subject, but also attitudes, comprehension, feelings and impact on our behaviour.

To achieve this, the educator should have a method of measuring the audience's knowledge, attitudes, comprehension, feelings and behaviour. This unit introduces two evaluation methods. These methods can be used with students, adults, literate and illiterate audiences. Before conducting a programme go through the evaluation methods and choose the appropriate method suitable for your audience or both can be tried.

Each time when the educator conducts a programme this exercise should be carried out before and after the programme. By comparing the difference in the knowledge level, behavioural change and feelings, the attitudinal change can be measured.

Assessment tool 1: Brain mapping

Can be used with

Literate and illiterate audiences of all ages.

Timing

About 20 minutes for each session, one pre-programme and one post-programme.

Methodology

Brain maps test the ability of the brain to relate different words and concepts to a central theme. Brain mapping is a very effective evaluation tool, with an exercise both before and after the teaching session or programme. Brain mapping is efficient because it is quick and easy to administer. Brain mapping is also effective because it can be used with both literate and non-literate groups. Simply ask literate persons to use words and non-literate persons to use illustrations.

A brain map should demonstrate the associations people have with a specified theme (in this case rhino) and the relationships between different associations. Although this is simple, it is not a familiar activity, so it is necessary to begin with a well-known and easy theme, such as "book" or "school" or "food". Demonstrate the activity by doing one as a group on the blackboard. If students do not respond immediately you can ask questions which elicit associated words for the demonstrator map.

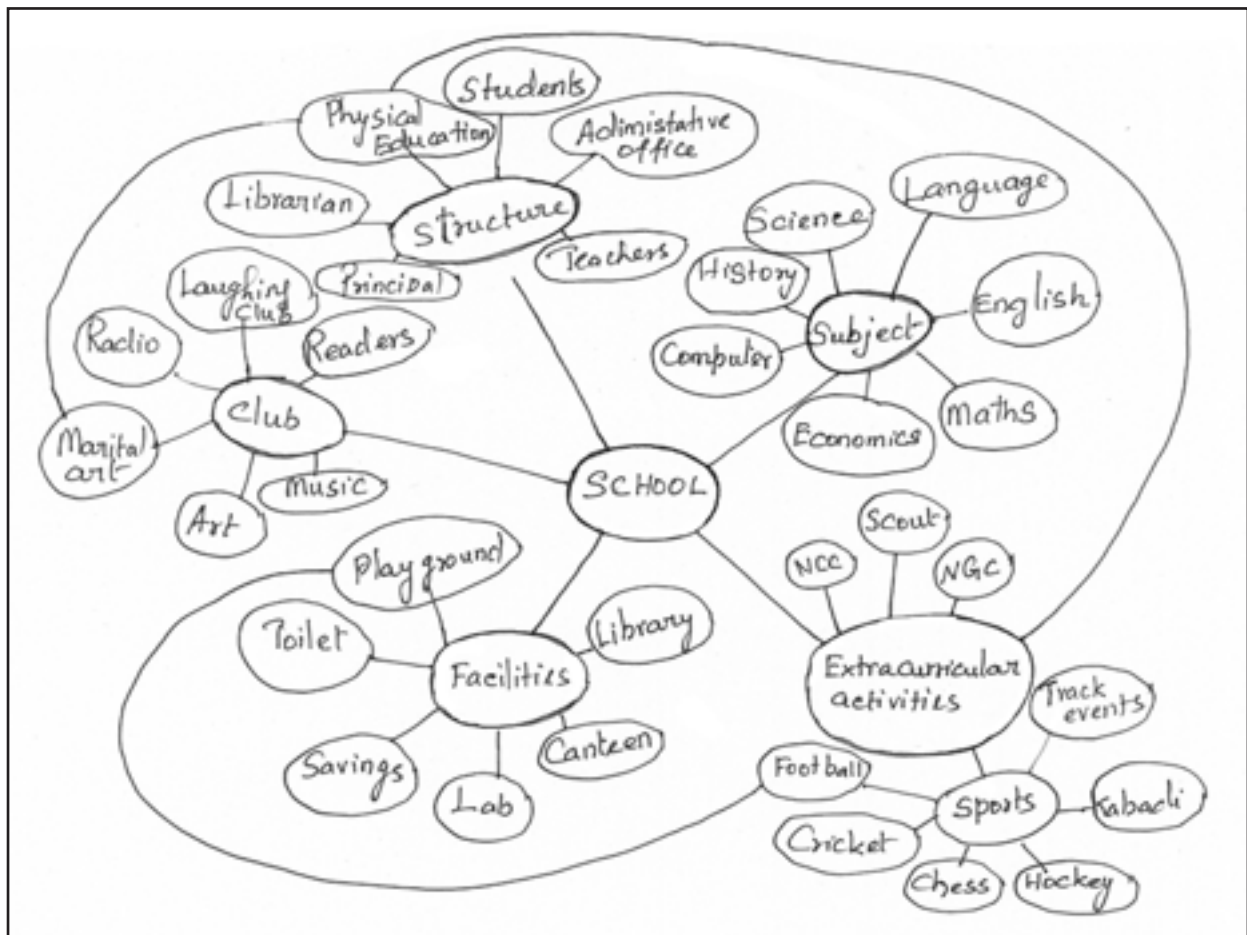
If you are using 'School' as the theme, some questions that you can ask are ...

- What are some examples of schools?
- What kind of people do you find in a school?
- What items do people take to school?
- What do people do after they leave school?

Most members of your audience will understand how to make the brain map after the demonstration so you can give them the task of making a Brain Map for the theme 'Rhino'. If you determine that some persons do not quite understand, you can ask the group to break into pairs and try to guide the pairing so that one of them understands the exercise. Retain these "maps". Ensure that they write their name and date on the Brain map they prepared.

Since you are using this exercise as an evaluation you must conduct it first at the beginning **before any information has been passed on** about rhino and second time after the learning activities are over... just before the closing session. You should ensure for the second exercise that the same two persons work together both times if you have had to pair them.

Sample brain map - subject: "School"

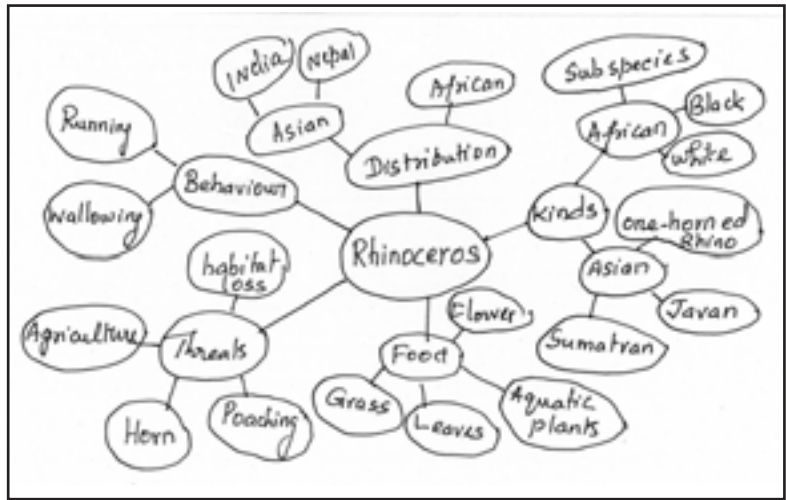


Sample brain map - subject: "Rhino"

Before the session



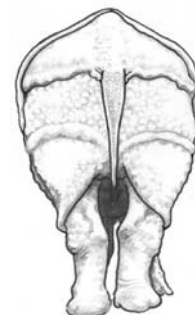
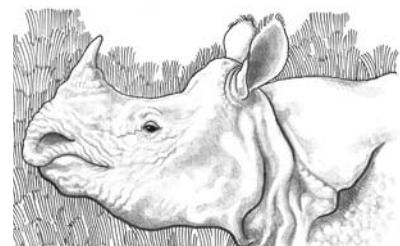
After the session



After collecting the 2nd map, you can bring out the first one and show students the difference in how much they knew and how they felt before and after the course. The number and quality of items they listed and their associations distinctly illustrates that their knowledge base has expanded and their feelings have changed.

The participants will have the satisfaction of seeing how much they learned and you will have "evidence" that your teaching programme was a success. If you have Xerox or other copying facilities, you can give the participants a copy of their maps to take back to their place for personal or professional use.

Rating the Brain map: You can assign marks in the following way and evaluate: give 1 point for each concept and 2 points each for sub-concepts. Further addition of concepts under each sub-concept will get 3 points each. Add the total and evaluate. Marks should be assigned only if the data or the information listed is correct or relevant to the subject.



Assessment tool 2: Attitude assessment

Can be used with

Literate and illiterate audiences of any age group.

Timing

About 30 minutes. Should be done pre and post workshop.

Methodology

"Happy face" illustrations are used to represent emotions of joy, impartial and sadness. Audience members are presented with answer sheets with thirteen rows of three faces: one happy, one impartial and one sad.



Happy



Impartial



Sad

Ask your group to put a tick mark the face that reflects how they feel about each of the announcements (given below), which you read out. If they are glad to hear this news, they should tick the happy face. If they don't have any particular feeling, they can mark the impartial face, which is the one with a straight line for a mouth. And if they are sad they should mark the sad face.

After the second session of this exercise, by comparing the pre and post workshops questionnaires, you will have a good idea of how your workshop changed attitudes of people with quantifiable data.

Attitudinal Survey Statements

1. Imagine a rhinoceros feeding in its natural habitat. It is one of the biggest land mammals on the earth. How does it make you feel?



2. You learn from a book that a variety of rhinos live in Asia and one of them is found in your country. How do you feel now?



3. Rhinos are killed for their horns. How does that make you feel?



4. In a National Park you observed a mother rhino with its calf playing around, how does that make you feel?



5. Humans have taken forests that rhinos used for food, water and shelter. How do you feel about this?



6. In some countries rhino horns are used as aphrodisiac. How do you feel about this?



7. Rhinos occasionally visit the croplands and eat villagers' crop. How does it make you feel?



8. Some times during flooding in rhino habitats they come to the roadside and also killed by fast vehicles. How does it make you feel?



9. We have laws stating that people cannot kill rhinos. How does that make you feel?



10. Rhinos in your country are disappearing and there are few individuals left in the wild in Protected Areas. How does that make you feel?



11. Rhinos no more exist in your State. How does that make you feel?



12. We have a scope to save the rhinos by preserving rhino habitats and also stop poaching. How does that make you feel?



13. We have success stories of bringing rhino populations to a safer level. Similar methods can be followed in other rhino locations wherever needed. How do you feel about this?



2. Know your species

Three species of Asian rhinoceroses

Rhino classification

Rhino facts

Asian and African rhinos

Facts about the Greater one-horned rhino

Teaching through mini dramas

Rhino history

Three species of Asian rhinoceroses

This unit introduces three kinds of rhino species found in Asia. This also teaches the systematic position of the Greater one-horned rhino in the animal kingdom. From this unit your audience can learn the basic facts about rhino such as regional names, habitat, life span, pregnancy, litter size, maturity, weight of male and female, height, food, predators, wild population estimate of Greater one-horned rhino. The important active learning tool introduced through this unit is drama. Through drama the target group learns the biology, threats to the species and conservation issues related to the Greater one-horned rhino. They get a chance to use different kinds of props and these improve their creative ideas and bring out their hidden skills. Other interesting activities are tracking the time-line of rhino from the past 8,000 years until now and then the future. This activity helps to understand the history of rhinos and also bring out the creative skills of the students. Some exercises require basic classroom materials through which they can learn rhino behaviour. While planning the programme choose the activity that you wish to try with your audience and check the list of materials required for the activity.



Three species of Asian rhinoceroses

Rhino classification

What makes the 3 Asian rhinos different from one another?

Taxonomy is the classification of organisms into groups based on similarities of structure or based on the evolutionary relationship between species. A species is a group of similar-looking organisms designated by a common name that are capable of breeding and producing fertile young ones and that are reproductively isolated from other such groups. Taxonomists put closely related living things into groups to classify them. Taxonomy is not so easy because the similarities and differences between closely related species are difficult to detect. Sometimes genetic analysis is used to classify a group of closely related species. Taxonomy helps in understanding life forms.

Taxonomy

Kingdom: Animalia (animal)

Phylum: Chordata (with backbone)

Class: Mammalia (feed milk, has fur)

Order: Perissodactyla (odd-toed mammals)

Family: Rhinocerotidae (rhinoceroses)

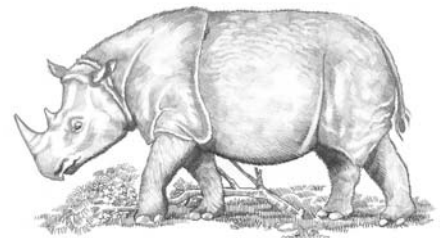
Genus: *Rhinoceros* (Greek: *rhino* - 'nose'; *ceros* - 'horn')

Species: *unicornis* (Latin: *uni* - 'one'; *cornis* - 'horn')

Rhino facts

Characteristic features of a rhino

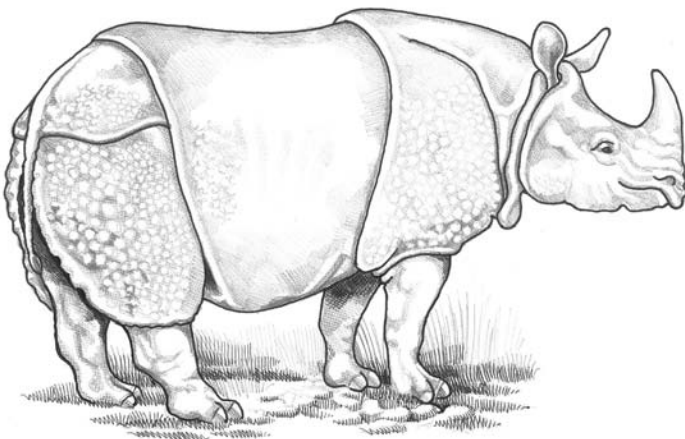
Rhinos are large, heavy and powerful mammals. They are the largest land mammals next to elephants. The skin of rhino develops thick folds resembling armour plating. The tail is laid embedded between the hind leg folds. Rhino has one or two horns depending on the species. The head is long and generally carried close to the ground.



Sumatran rhinoceros

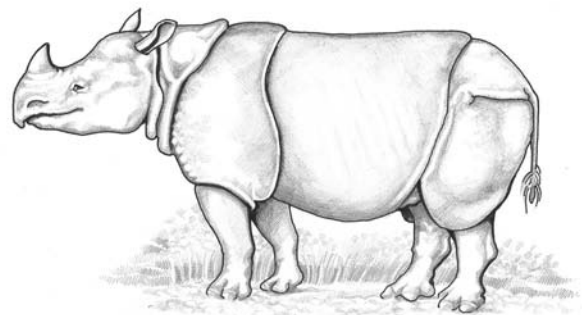
Average weight 600 - 950 Kg.

The only two horned Asian rhino with hairy skin



Greater one-horned rhino

Average weight 1800 - 2700 kg. Biggest of all rhinos



Javan rhinoceros

Average weight 900 - 2300 kg., Skin folds shallower

Asian and African rhinoceros

Rhinos live in Asia and Africa. Three kinds (species) of rhinos are found in **Asia**.



They are:

1. The Greater one-horned rhino / Great Indian rhinoceros - *Rhinoceros unicornis*
2. Javan rhinoceros - *Rhinoceros sondaicus*
3. Sumatran rhinoceros - *Dicerorhinus sumatrensis*



Two kinds (species) of rhinos are found in **Africa**.

They are:

1. White rhinoceros / Northern white rhinoceros - *Ceratotherium simum*
2. Black rhinoceros / Hook-lipped rhinoceros - *Diceros bicornis*



Difference between Asian and African rhinoceros

	Asian	African
Horns	Smaller horn or horns (Sumatran)	Bigger and two horns
Dentition	Tusks* present in the lower jaw	Tusk absent

*Tusks are the mandibular lower outer incisors often referred to as tusk

Facts about the Greater one-horned rhino

The Greater one-horned rhino / Indian rhinoceros / Great Indian rhinoceros, *Rhinoceros unicornis* is found in India and Nepal.

Some local names are:

Language	Name	Language	Name
Assamese	<i>Gor, Garh</i>	Bengali	<i>Gawndar</i>
Hindi	<i>Gainda, Gonda, Genda, Gargadan</i>	Marathi	<i>Genda</i>
Nepali	<i>Gaida</i>	Punjabi	<i>Karkadan</i>
Tamil	<i>Kaandamirugam</i>		

Habitat:	Riverine grassland, alluvial soil, swamps and forests.
Colouration:	Greyish brown
Weight:	1,800 - 2,700 kg. Average 2000 kg.
Height:	5.75 - 6.5 ft. (at shoulder)
Length:	10 - 12.5 ft. (head and body)
Horn length:	8 - 24 inches
Life span:	30 - 40 years
Pregnancy:	15.7 months
Litter size:	One
Maturity:	Males at 10 years; females between 5 - 7 years
Food:	Mainly grasses. Other aquatic plants, evergreen leave, fruits, flowers
Special behavior:	Wallowing
Wild population:	3339 (estimate)



Teaching through mini dramas

Mini dramas are designed to introduce aspects of species biology and conservation issues in a way that is fun and memorable, and that allows the audience to know about animals and the situations they face in the wild. These mini-dramas can be fun for all people from small children through adult, as long as the drama leader is able to motivate them to become involved. If you feel that the adults you are working with would not enjoy participating in these dramas, prepare a group of children to perform for the adult audience. Parents might get encouraged to participate if their children are involved.



The dramas are designed such that no special props or costumes are necessary. However, costumes and props will make the dramas more enjoyable and meaningful for the performers and their audience. You have been provided with education packets that has Rhino mask. Black and white outline rhino mask is also given in the Appendix 4 of this training kit. Take photocopies of the mask on art board and it can be reproduced and coloured so that many of the performers can wear them. Performers playing other characters can make their own masks.

Two drama scripts are included in this tool kit. Each drama should be performed by a minimum of six persons; select your participants and you may wish to use both the scripts. Rest of the participants could be the observers. Ask one person in each group to volunteer to be the director.

Explain that each group will rehearse its drama and must keep the subject a secret from the other groups and the audience. In each drama, all of the roles are in **bold** types the first time they are mentioned. For example, in the Recovery drama participants will play the following roles: **rhino, plantations, people, crops** etc. Depending on the number of people in the group, a performer may need to play more than one role. Make sure the participants understand that the dramas will be **performed without speaking**; only animal sounds, tools and natural sounds like wind are allowed. After the groups have rehearsed sufficiently, have each group perform for the audience. When each drama is finished, the audience must try to explain what event is being dramatized, and what roles are being played.

After all the dramas have been performed the following activities can be done:

- Hold a discussion about the issues that have been presented in the drama.
- Ask participants and audience members to make a list of questions stimulated by the dramas. Use a flip chart or black board to list the questions.
- Ask them to propose other rhino issues that could be the subject of the dramas.
- If you will be working with participants over a sustained period of time, you may wish to ask participants to work together to write their own dramas.

Drama 1



Recovery

Centuries ago **rhinos** in India lived in huge numbers. Later rhino homes were cleared and converted into agricultural (**crops**) and **plantations** areas. They were also killed in large numbers during colonial period and later hunted for horns. In early 20th century the rhino population was reduced to a few hundreds and left with no home. Government intervened and created Protected Areas and strict laws to protect rhinos. The **forest department** and **NGOs** conducted many projects (re-introduced, translocated, restored the forest, sensitized **people**). The population slowly increased and recovered. Needs more protection though.

Drama 2



It's real ... not a rumour

On three sides of a Protected Area having 80 km², about 124 thousand **people** lived in 70 villages with tea gardens on the fourth side. Poor villagers illegally collected firewood from the PA, took **cattle** for grazing, occasionally hunted wildlife and received punishments for offences. Advise, punishments, laws did not work with the poor villagers who struggled for their livelihood. At this situation the **forest department** set up an ecotourism camp in the fringe of the National Park for the people, of the people and by the people and provided alternate income for the villagers. Villagers started protecting the National Park, wildlife and the biodiversity. Village **folk group** celebrate the decade of the project with forest department and villagers.

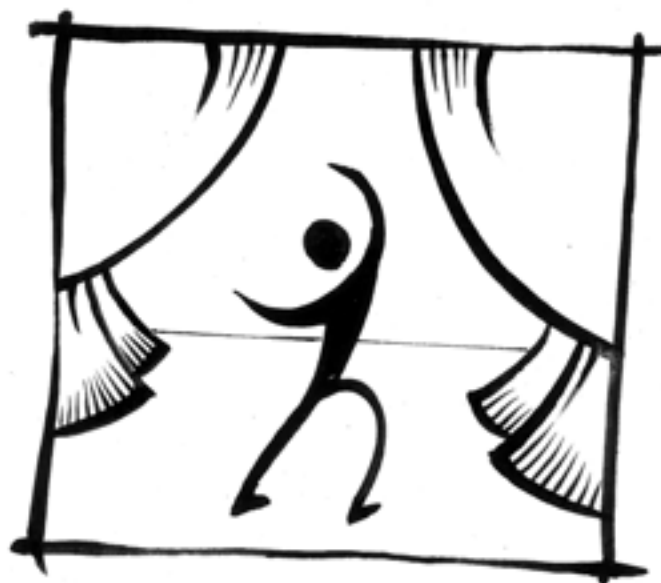
Drama based on scientific article by Tapas Das (2011): *ARANYA* 1(1): 8 Pp.

Create your own drama: Instructions

Using the guidelines below, work with your group to write and perform wildlife dramas.

Steps:

1. Choose a biodiversity/wildlife topic based on an issue that is important to your group. Try to pick a very specific issue, as you will have limited presentation time. What is your topic? (Facilitator may want to hold a brainstorming session first, and then write the chosen topics on a board).
2. Pick what events you want to act out - your story line - keeping it simple to be able to present within a five to ten minutes time frame. What are the main events in your drama?
3. You do not need to write a script; rather think of the kinds of conversations your characters would have. What are the main topics of dialogue?
4. List the characters (people, plants, and animals) to be involved in this issue. Who are the characters in your drama?
5. Assign roles and rehearse. As you practice, keep in mind the message you are trying to convey.
6. What is the main message of your drama?
7. Decide where your drama will take place. What is the setting?
8. Make props and costumes - be creative! Using scrap materials and natural materials is a great idea. Make sure you have already practiced so that you do not take all the rehearsal time to make your props and costumes.
9. Present your drama! Define the stage area and audience area. Maintain the attention of your audience!
10. Discuss about the message with your audience.



Rhino history



If we want to safeguard rhinos, it is important to know the historical events related to them. Depicting the history of rhinos in words and pictures is a great way to learn also. Here is an activity that your audience can trace the history of the Greater one-horned rhino. It provides portrayals of important historical events of rhinos. This can also serve as an art skills activity. This exercise has to be done in an orderly manner and so before you begin, take a photocopy of the event and dates given below and cut them according to date. You can then paste each event with dates on a piece of cardboard.

Depending on the size of your audience, hand out one or more of the provided rhino history cards to each participant. Make sure you select dates starting from an early date back in time and go into the future, e.g. 6000-1000 B.C. The history card can be given to an individual or to a pair of participants. Give the participants a blank piece of paper (preferably A3; otherwise A4) and also drawing or painting materials. Ask participants to illustrate the events in the history of rhinoceros and to write captions explaining how they feel about the events illustrated.

At the end of this exercise your audience will have created a fun and attractive exhibit on the history of the rhinoceros. Ask your participants to arrange their illustrations on the wall in chronological order. If you run this exercise in a classroom, it could stay up on the wall for a while or even be put in the hall or exhibited elsewhere for others to see. Give them a chance to explain their illustration to the group before putting it up on the wall.

To personalize the historical timeline and put them in perspective you can also add:

- The date of your education programme about rhino
- The date of birth of the illustrator
- Any incidence related to rhinoceros that happened in and around the place where you conduct the education programme
- Date of creation and name of a Protected Area in the State or Province where you run the education programme
- Local newspaper incidents related to rhinoceros

Discussion

After all the students or participants have put up their picture, take a break and let them go up and examine the illustrated history as a whole. This will help them to get the bigger picture of the history behind the topic discussed and participate more meaningfully in a discussion. You can ask them the following questions.

Did anything different start to happen that might have affected rhinoceros during their history? What was it?

What are the causes of decline of rhinos in South Asia?

Do the events in the rhino history indicate any change in the way humans should perceive them?

Do you have hope that rhinoceros can survive into the 21st Century? Why?

What are the major threats for Indian rhinoceros?



Data to trace the Greater one-horned rhino history

6000-1000 B.C.

The earliest evidence of Indian one-horned rhino is a work of art seems to be a rock painting in a Mesolithic cave at Bhimetta near Bhopal, Madhya Pradesh.

2300-1750 B.C.

The earliest depictions in stone of a rhinoceros originate from the Indus valley, Pakistan where they were made during Harappa period of the Bronze Age in the form of steatite seals.

690 B.C.

The Greek physician Ktesiar, who lived at the Persian court of King Artaxerxes at the end of 5th Century, gave the first reference of the existence of the one-horned rhino in India

300-200 B.C.

One-horned rhino were plenty in Indus valley (Pakistan) during this period. Remains of the *Rhinoceros unicornis* are recovered from several archaeological sites: Lothal in Gujarat, Nausharo in Pakistan.

ca. 1100 A.D. Pre-Mughal period

Rhinos were tamed and used in works by the kings in pre-Mughal period in India and to pull ploughs in Assam.

1300 A.D.

In early Mughal Period, the rhinoceros still extended as far west as the Punjab hills, Peshawar, Sindh and the lower Indus.

1398-1405 A.D.

During Timur Lenk's reign in India the rhinoceros is common in Jammu and Kashmir and Timur is reported to have hunted it.

1400 A.D.

The Greater one-horned rhino population was about 4,75,000 or even more. It occurred from Pakistan on the west and up to Myanmar in the east of Asia.

1500s

Large-scale conversion of the alluvial plains grasslands to agricultural land became a biggest threat for the Indian one-horned rhinoceros.

1556-1605 A.D.

Akbar was passionately enamoured of animals of all kinds and he maintained menagerie during his regime. The inmates of his menagerie included rhinoceroses, horses, elephants, antelopes, nilgais, large buffaloes lions, tigers etc.

1600 A.D.

The Indian rhinoceros were common in riverine grasslands with grasses up to 8 m. tall in northern India, Assam, Pakistan (Indus valley), Nepal, Bhutan and northern Bangladesh.

1758 A.D.

Linnaeus discovered this species this year. He named it as *Rhinoceros unicornis*. In Greek: *rhino* means 'nose' and *ceros* means 'horn'. In Latin *uni* means 'one' and *cornis* means 'horn'.

1800s

In Nepal, during Mulla period, the rhino statues were portrayed. They are even now found in Siddhi Lakshmi temple, Bhaktapur, Nepal.

1850s

Captain Pollock, a military engineer was responsible to lay down the road networks in the Brahmaputra valley in the nineteenth century. He shot dead one rhino or buffalo for every breakfast.

1886 A.D.

E.P. Gee, a planter turned conservationist wrote 'in 1886 a certain sportsman went out on elephant in the area, which is now Kaziranga to shoot rhino. He encountered one and fired about a dozen shots at it from very close range. The wounded rhino made off, and as it was too late in the evening the hunter returned to his camp.

1871-1907 A.D.

Nripendra Narayan Maharaja of Cooch Behar in the year 1902 shot dead no less than 370 tigers, 208 rhinoceroses, 430 buffaloes and 324 Barasingha deer.

1902 A.D.

J.C. Arbuthnott, Commissioner of Assam valley in a letter to the chief Commissioner of the province wrote that 'rhino which was formerly common in Assam has been exterminated except in remote localities at the foot of the Bhutan hills in Kamrup and Goalpara and in a very narrow tract of country between the Brahmaputra and Mikir hills in Nowgog and Golaghat where a few individuals existed.



1903 A.D.

There was rampant killing of the rhino this period. *Times of Assam* published a letter that decried the extensive killing of animals. The media reported that the Mikirs had taken the profession of killing animals.

1903 A.D.

The rhino had completely disappeared from North Lakhimpur, Assam, a fact mentioned in official records.

1905 A.D.

Kaziranga reserve Forest was created with an area of 232 km²

1912 A.D.

An estimate taken in 1912 in Kaziranga, Assam indicated the number of Indian one-horned rhinos at less than 100.

1948 A.D.

The first ever rhino census took place in Assam in 1948. E.P. Gee, Anglo Indian tea Planter and unpaid, influential naturalist and wildlife conservationist in India participated in the census.

1949 A.D.

In March 1949 the Assam government invited India's renowned wildlife conservationists Salim Ali and Dillon-Ripley to study wildlife status in the state. The rhino population in Manas Sanctuary was reported to be a maximum of nine.

1948 A.D.

In 1948 the one-horned rhino was accepted as the Assam state emblem. Official acceptance of rhino as the state symbol of Assam government gave further political credibility to the cause of the rhino.

1949 A.D.

Counting of animals from an air plane was tried at Kaziranga National Park on 24 March 1949, but the grass cover was so dense that only a few animals (rhinos) could be counted.

1954 A.D.

In December 1954, the Assam government introduced the Assam Rhinoceros Preservation Bill to protect the rhino being killed, captured, and injured. The bill aimed at controlling its destruction outside the Reserved Forest.

1960 A.D.

In 1960s only two-core population of rhinos remained in Nepal and India. Nepal had as low as 60-80 by early 1960.

1963 A.D.

Wildlife survey of Kaziranga was conducted on 19 April as reported by J. Juan Spillett. This is said to be the first extensive wildlife census in Kaziranga. A total of 400 rhinos were observed and recorded.

1968 A.D.

The Assam state government passed the Assam National Park Act of 1968, declaring Kaziranga a designated National Park.

1970 A.D.

Smaller reserves in India (Assam, West Bengal, Uttar Pradesh) had rhino populations in single digits or under 20 individuals.

1972 A.D.

A modern rhinoceros sculpture is provided by the Peace Stupa (Shanti Stupa) on the Dhaulagin near Bhubaneswar, Orissa

1972 A.D.

The Indian Wildlife (Protection) Act, 1972 listed the Greater one-horned rhino under Schedule I Part I of the Act that gave highest level of protection.

1975 A.D.

Rhinoceros unicornis is put on Appendix I of CITES, prohibiting international trade of Rhino products among CITES member countries.

1986 A.D.

The Greater one-horned rhino is listed as Endangered in the IUCN (International Union for Conservation of Nature) Red List of Threatened species.

1993 A.D.

Population and Habitat Viability Assessment workshop was organized by Forest Department of West Bengal, Zoo Outreach Organization, Conservation Breeding Specialist Group, India (now South Asia), Jaldapara Wildlife Sanctuary and Asian Rhino Specialist Group. A country Action Plan was worked out by eminent conservationists around the world.

1997 A.D.

The Asian Rhino Specialist Group worked out a Status survey and Conservation Action plan for Asian rhinos.

1997 A.D.

With all efforts the population of rhinos increased in Protected Areas. In 1997 rhino population estimations were as follows: Dudhwa National Park (11), Manas National Park (60), Katarniaghat (4), Kaziranga (1164 +/- 134), Orang (over 90), Pabitora (80), Jaldapara (over 33), and Gorumara (13).

2000 A.D.

The Greater one-horned rhinos managed to live in different habitats and are now found in wood jungles, low hills, cultivated areas, pasturs and modified woodlands.

2006 A.D.

The first rhino translocation was successfully carried out this year in Manas National Park by WWF India and the Assam Forest Department.



2006-2007 A.D.

In 2007 Rhino population in Protected Areas were as follows: Dudhwa National Park (21), Manas National Park (3), Katerniaghat (2), Kaziranga National Park (1,855 in 2006), Orang (68 in 2006), Pabitora (81 in 2006), Jaldapara (108 in 2006), Gorumara (27 in 2006).

2008 A.D.

The Greater one-horned rhino is reassessed as Vulnerable in the IUCN (International Union for Conservation of Nature) Red List of Threatened species. This is a conservation success story in the history of Indian rhinoceros.

2009 A.D.

Kaziranga National Park, which was established as a reserve for the last 10-20 Indian rhinos in Assam in 1905, is now home to over 70% of the global population of this species.

2014 A.D.

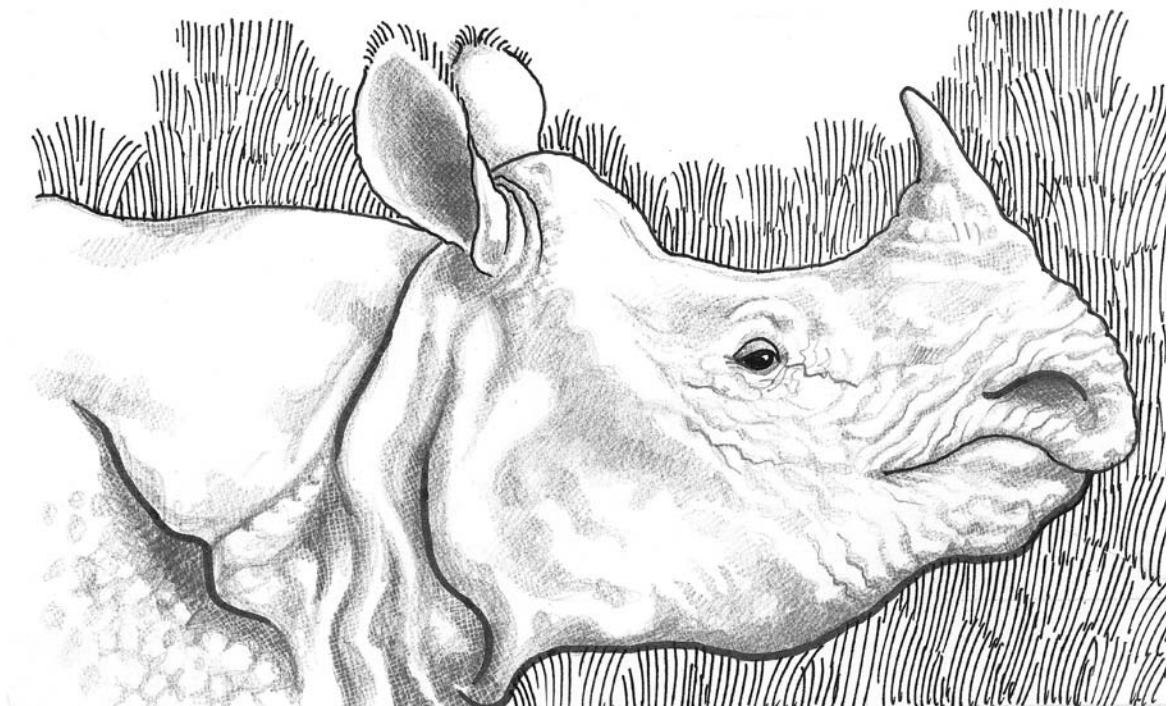
The Asian Rhino Specialist Group reports that the Rhino population in India is now 3339 individuals.

2020 A.D.

Rhino Vision 2020: Assam State government in consultation with conservationists and with the aim of conserving 3,000 rhinoceros in Assam by 2020, fixed a target to translocate rhinos from Kaziranga NP to re-establish rhino in other parks.

2050 A.D.

The human population by 2050 will be 11 billion. What will be the status of rhinos at this period? What will you do to help its survival?



3. Ecology of the Greater one-horned rhino

Where rhinos lived, live and will live?

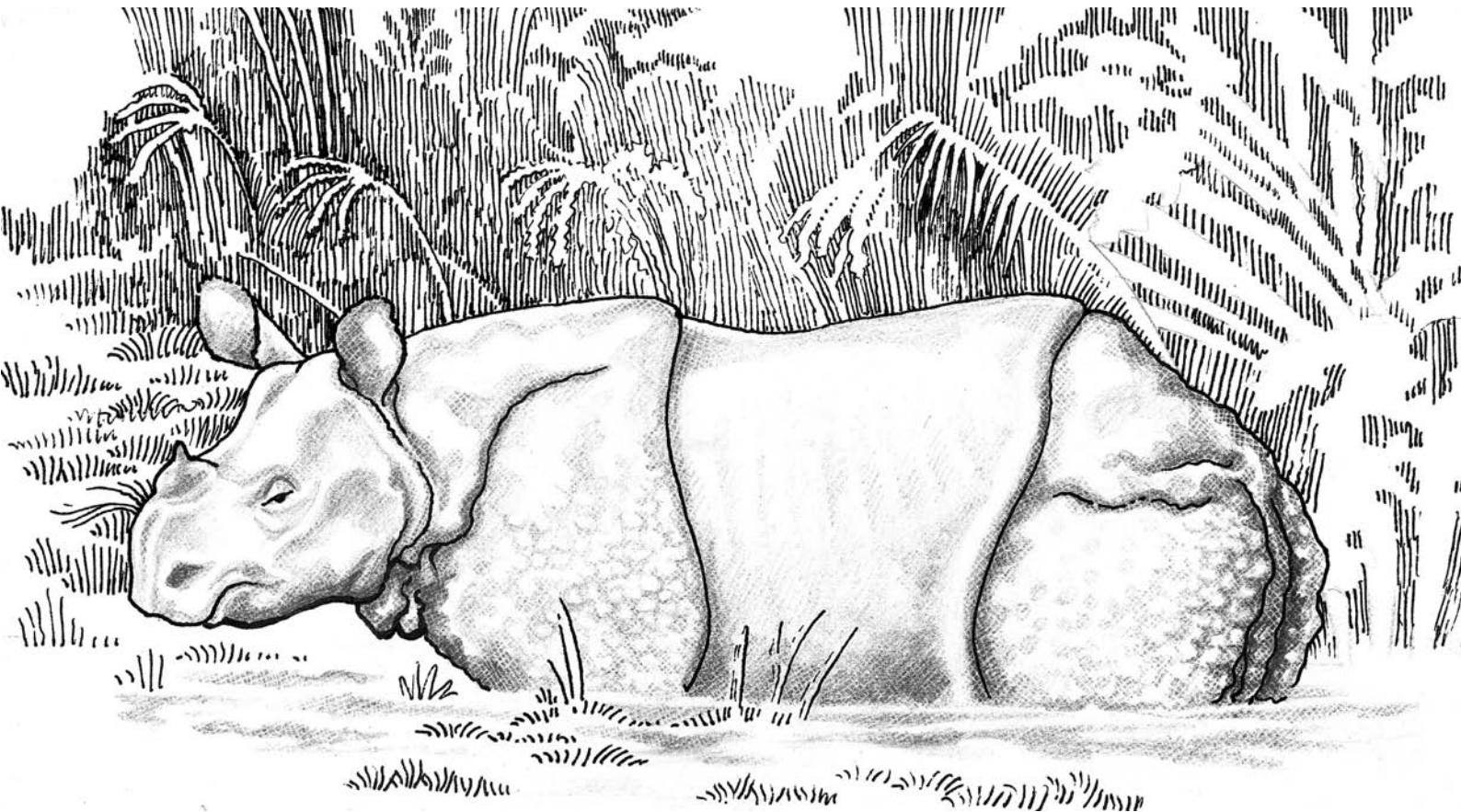
Historical and present distribution of the Greater one-horned rhino

Rhino behaviour

Asian rhino in our culture

Where rhinos lived, live and will live?

The objective of this unit is making your audience understand the causes of decline of rhino population in its range areas. Through active learning methodology, your audience will learn the past and present distribution of rhinos, its behaviour, biology and its role in human culture. Animals have played a very important role in the evolution of human culture. Rhinos are no exception. However, it may be difficult to make your audience understand how rhinos specifically have influenced human culture. This concept is conveyed by being exposed to various cultural practices involving rhinos through group activities. To more to it you can use local examples and stories related to rhinos.



Where Rhinos lived, live and will live?

Historical and present distribution of the Greater one-horned rhino

Wildlife scientists estimate that there were approximately over 4,75,000 wild rhinos lived in Asia around 1400. Now we have about 3,330 rhinos left in South Asian region.

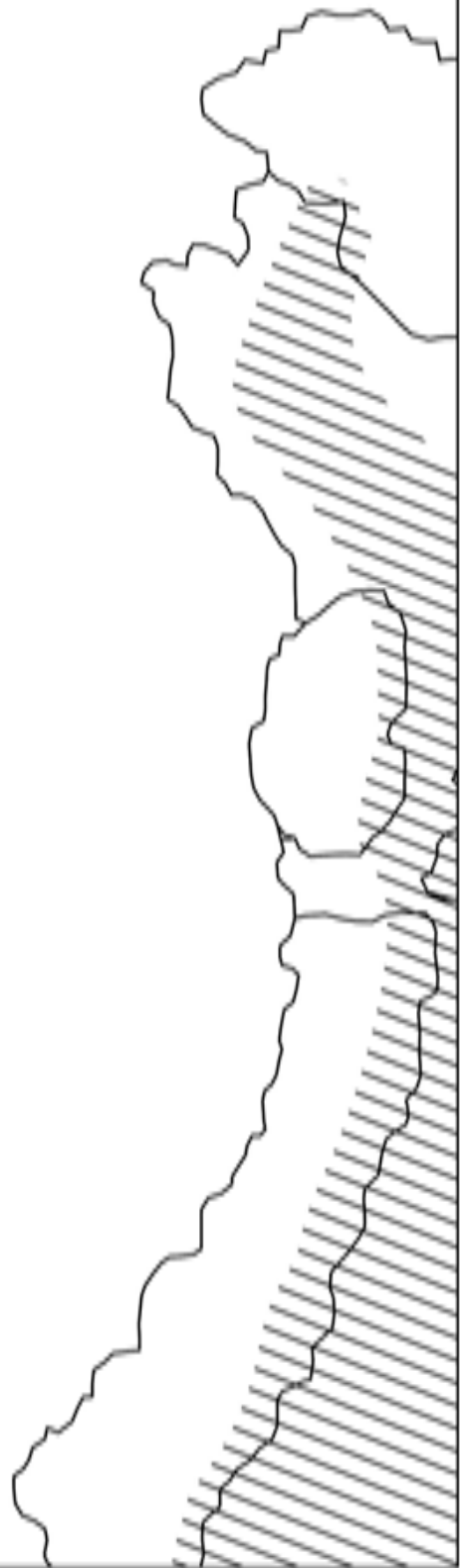
The Greater one-horned rhino are usually found in mud baths as some other animals like water buffaloes. They live in riverine grasslands. The actual home for rhinos are alluvial soil with clay, silt, sand and gravel left by flowing river valley, and also in swamp forests. These days the real rhino habitat is reduced to a small region due to developmental activities that resulted in habitat loss and degradation.

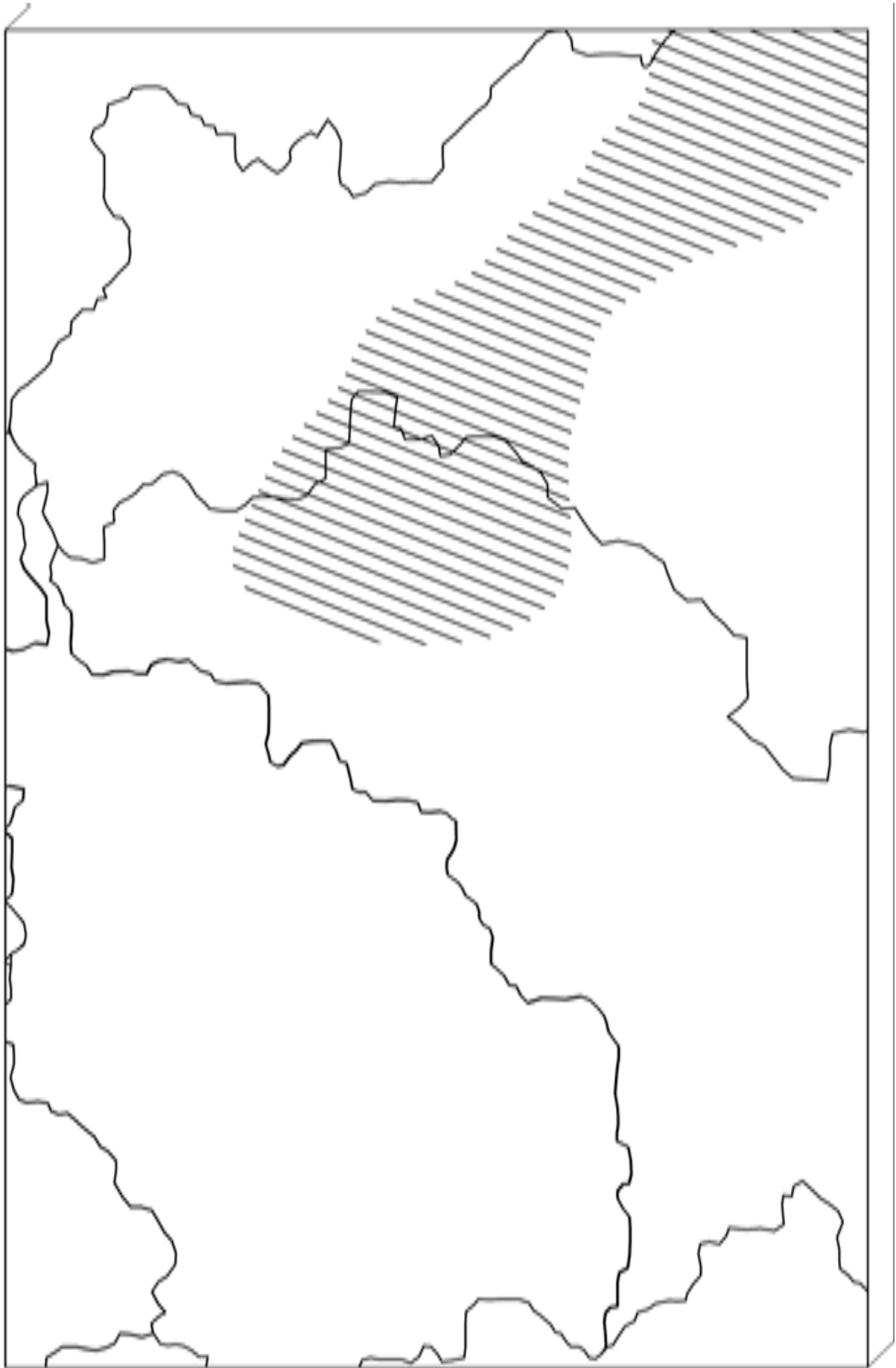
This activity is designed to introduce your group to the dramatic decrease in the wild rhino populations and the cause.

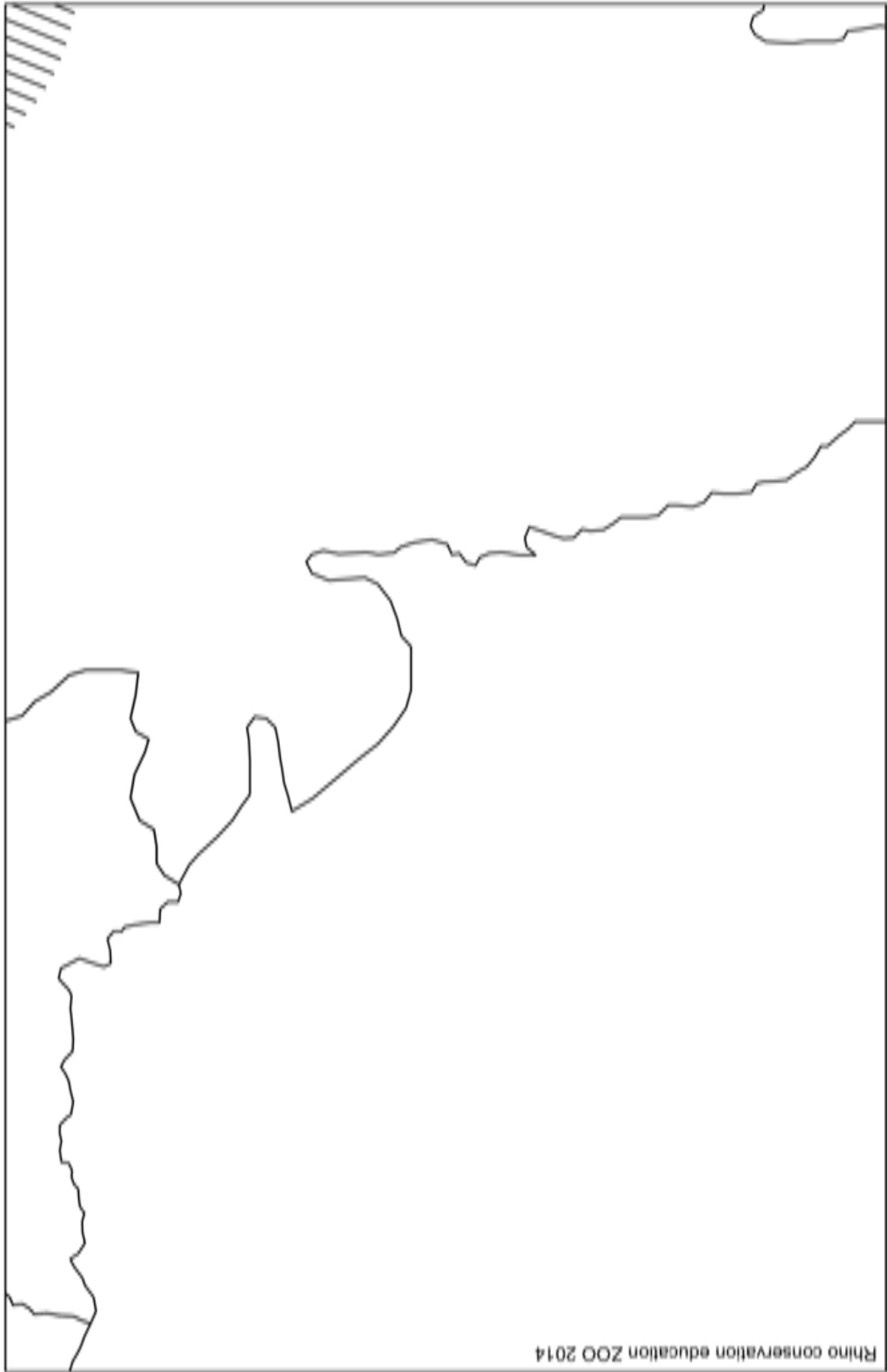
Instructions:

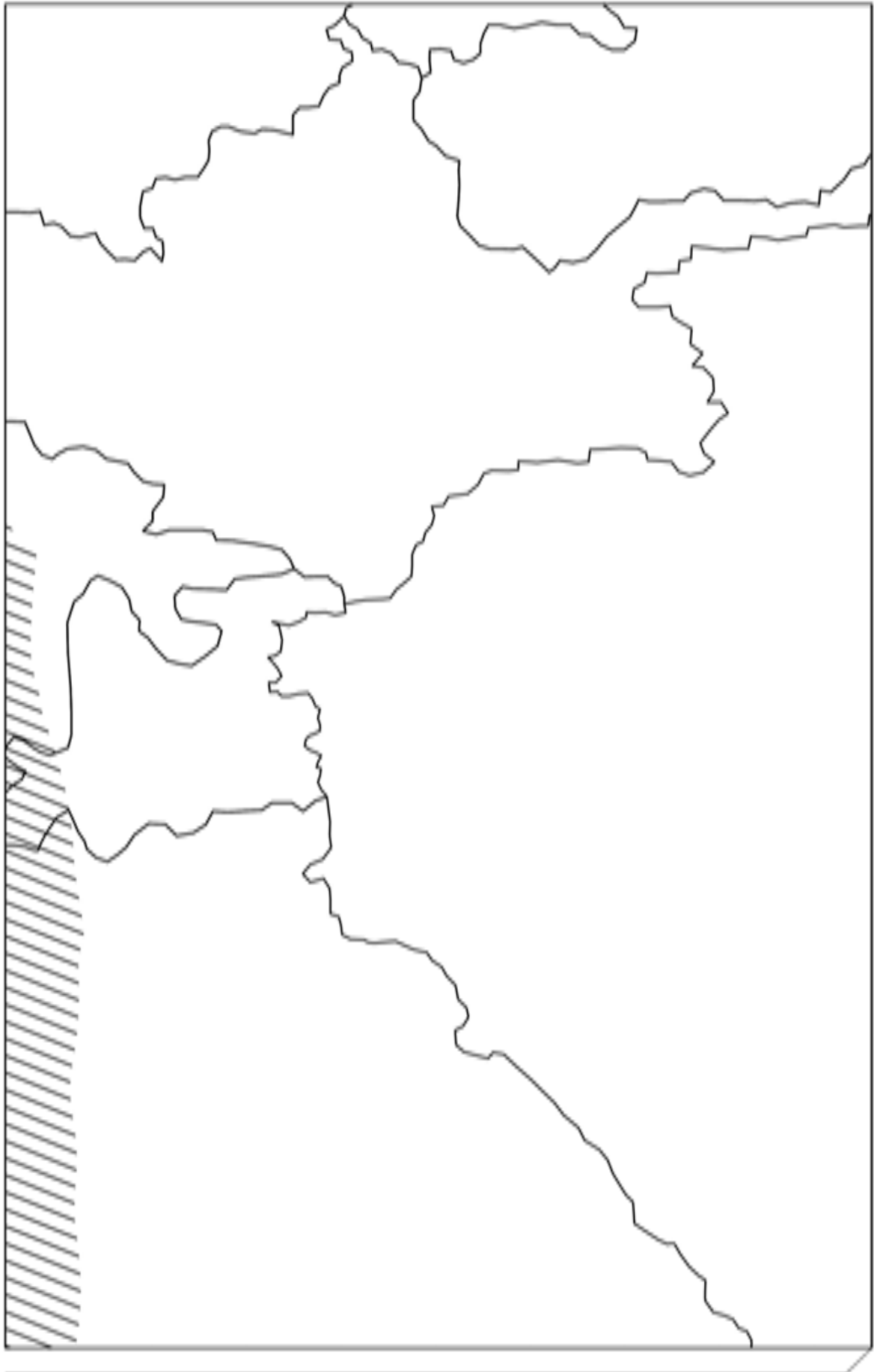
1. Take photocopies of the maps given on pages 21 to 28.
2. Take multiple copies as per the total number of groups formed.
3. Give the maps to assemble the historical distribution of the Greater one-horned rhino. Then ask them to assemble the current distribution map.
4. Give your audience ten minutes to read the map. Ask them to compare the historic and the current map and to do the following in groups.
 - i). Ask them to list all of the countries that rhino lived some 600 years ago.
 - ii). Ask your audience to make another list of all the countries that rhino are found now. How many countries are found in each list?
 - iii). Can you think of any problems that would result from rhinos being confined to small areas of natural habitats?
 - iv). Tell them that other Asian rhinos also have reduction in habitat.
 - v). Give your audience the following maths problem. If there were 4,75,000 wild rhinos 600 yrs ago, how many have been lost since then? Scientists report that there are fewer than 3,330 Greater one-horned rhino in its distribution range. If your groups know how to calculate percentages, then have them figure out what percent of rhino population had disappeared over the last 600 yrs.
 - vi). Ask your audience to read the maps and explain them that historically the Greater one-horned rhinos once existed across the entire northern part South Asia along the Indus, Ganges and Brahmaputra river basins from Pakistan to the Indo-Myanmar border, including parts of Nepal, Bangladesh and Bhutan. It was common in northwestern India and Pakistan until 1600. The species declined during 1600-1900 and went to the brink of extinction. Refer to the illustrated history activity to learn more about species decline.
 - vii). Lead a concluding discussion. Once the population of this species went down beyond this and due conservation initiatives were taken to bring up its population to the present level. This species is now found in Protected Areas only. Tell them that if the threats affecting on them are continued, it will lead to the extinction of the species. Extinction means no longer in existence.

Historical distribution of The Greater one-horned rhino

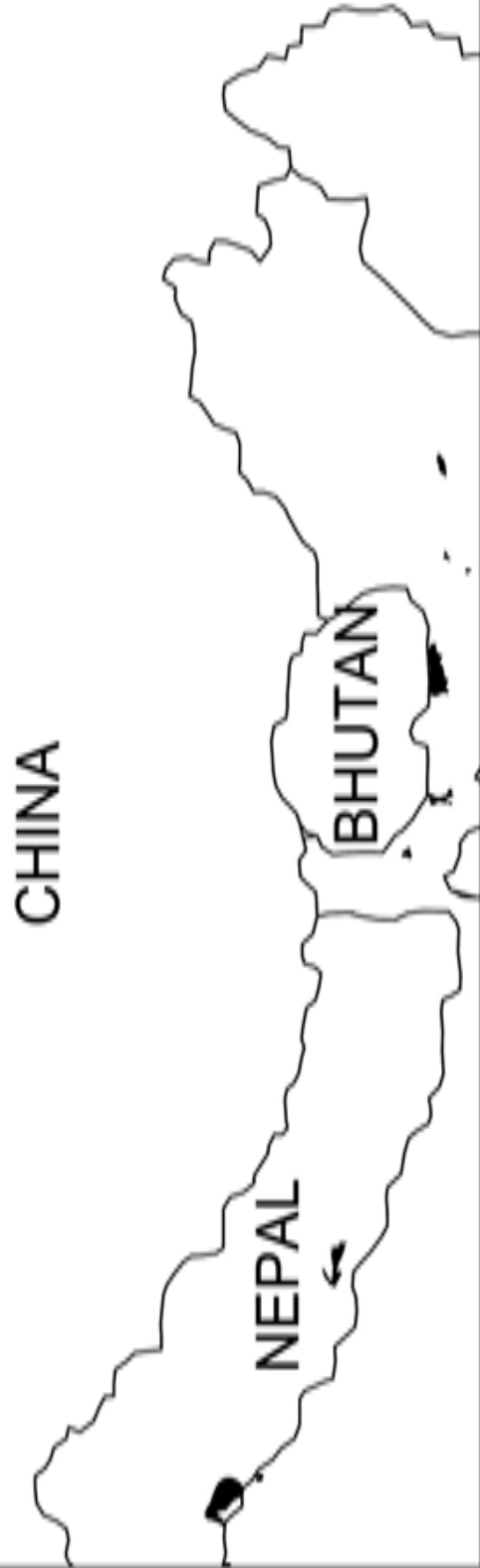


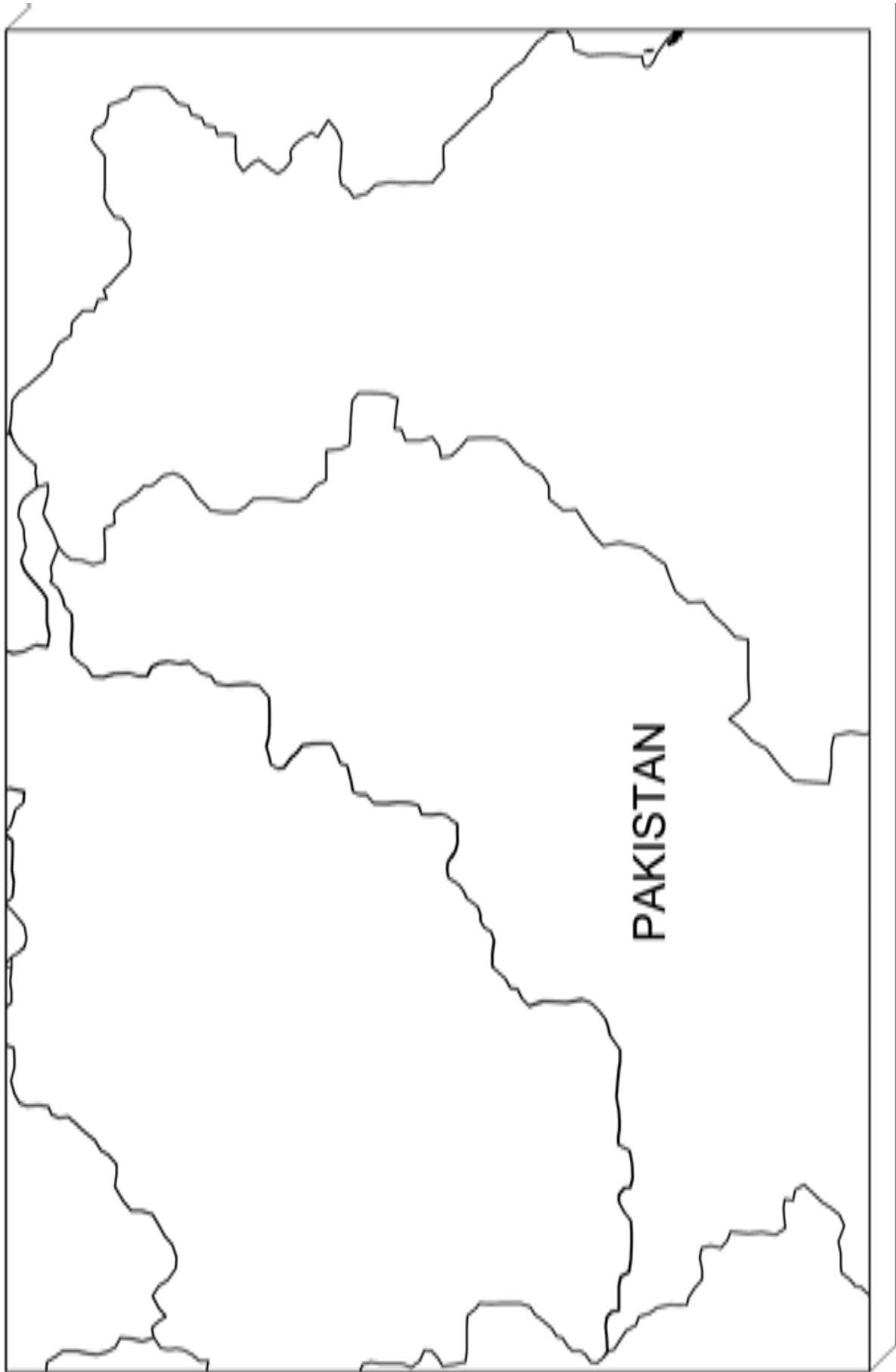


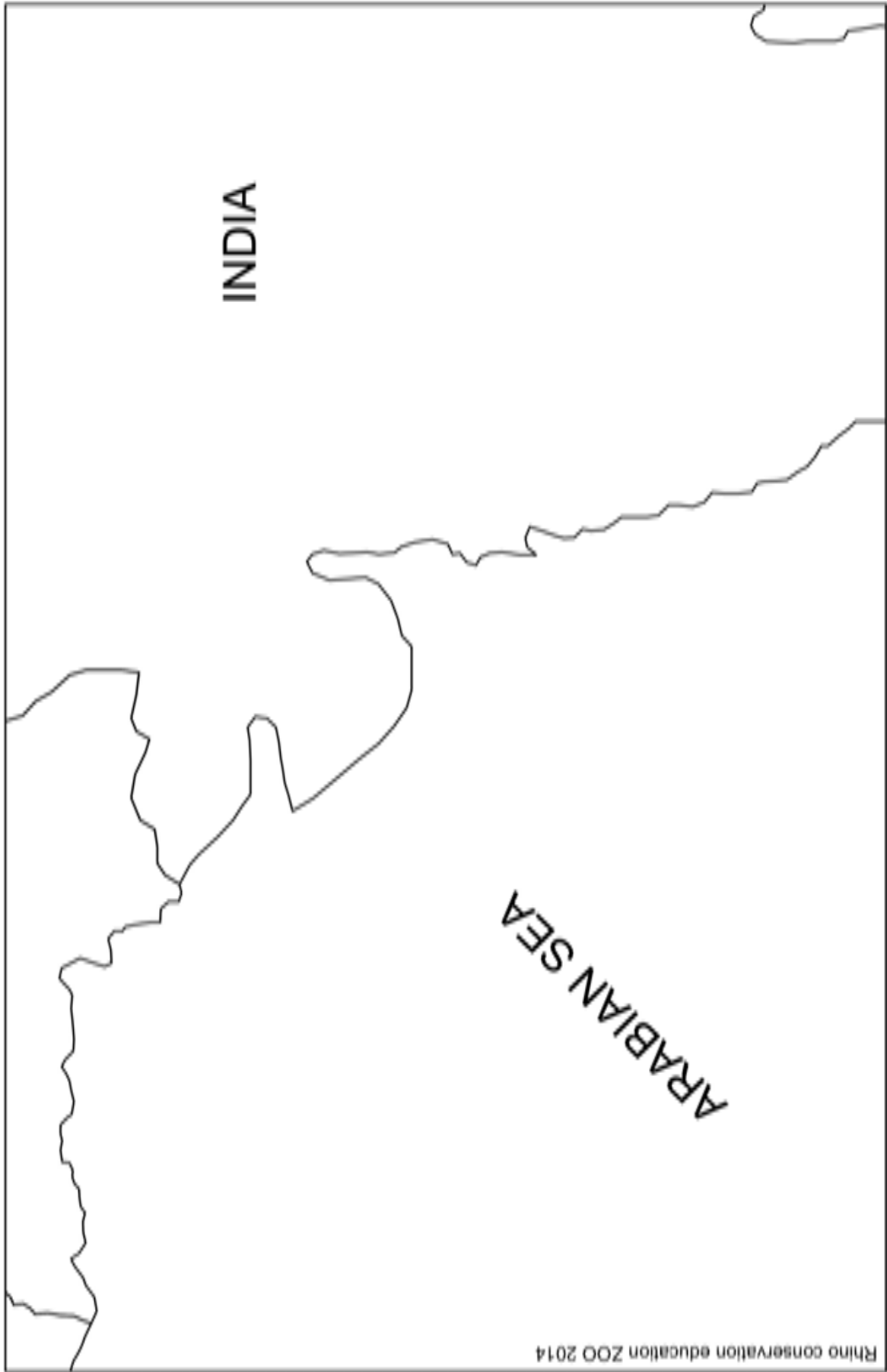




Present distribution of The Greater one-horned rhino

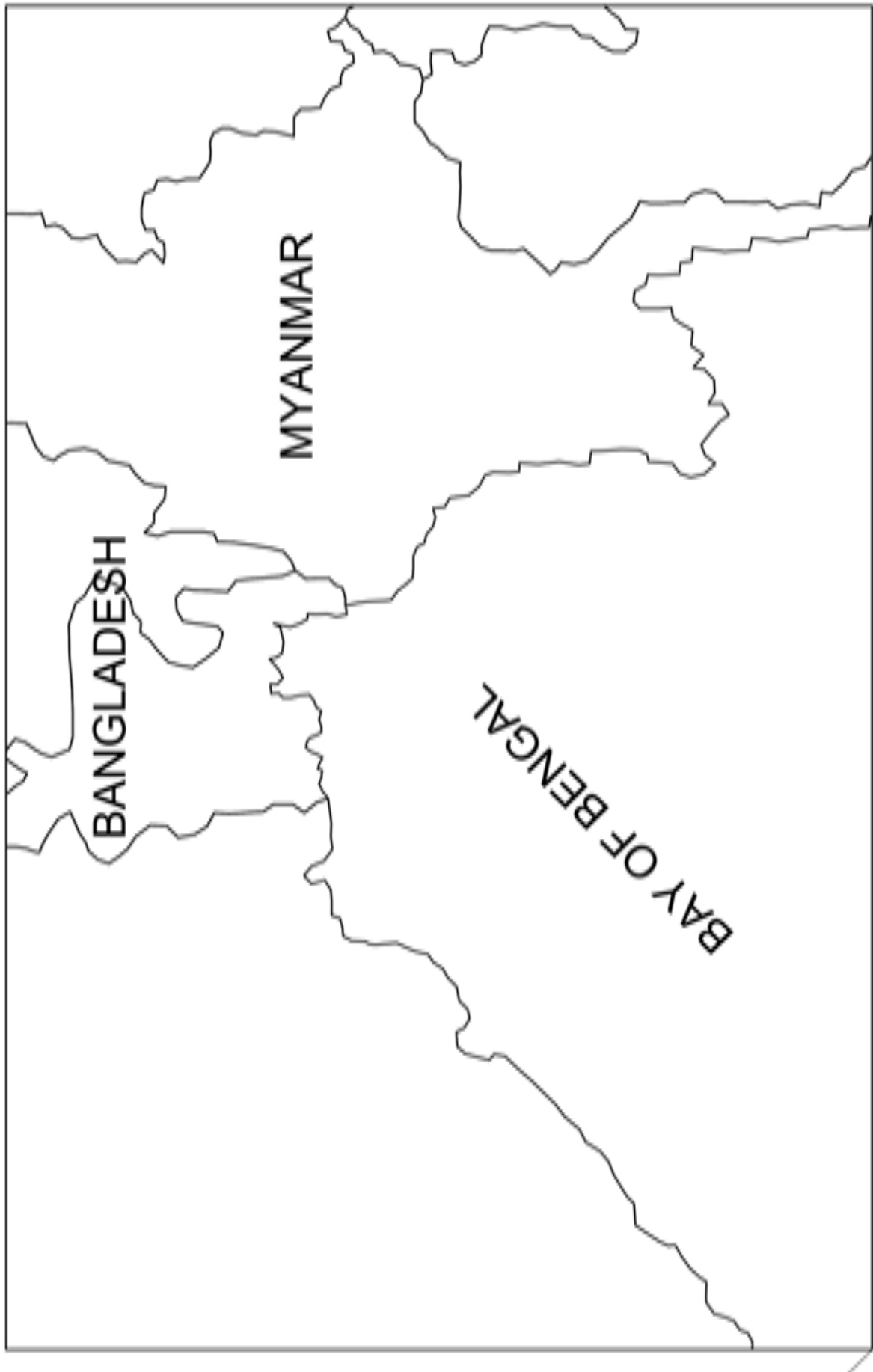






Rhino conservation education ZOO 2014





Rhino behaviour

The best way to learn the behaviour of an animal is by observation. Observing a live animal in the wild is not possible for most of us unless we live close to a National Park of Sanctuary. Even then, only an experienced researcher may know how to get close to an animal without disturbing it. If you disturb a rhino in the wild, you might be in grave danger.

Animals like rhinos can be observed in close proximity safely only in zoos. Many people do not have access to zoos. Rhinos exhibit characteristic behaviour which are unique. In order to appreciate the species it is essential that we understand how they are adapted to survival.

The following are a set of group activities that will help you observe rhinos and to understand its adaptive characters. When you play these activities it will give your audience some idea about the behaviour of rhinos. Five activities are listed below. Each activity has brief introduction and instructions to follow. As an educator read these instructions carefully and before starting it keep all the materials ready. This is a group activity. Follow the instructions given in the activity and form groups.

Activity 1. Body weight and height - Rhino and Human

In this activity, participants compare their own height and body weight of those of a Greater one-horned rhino.

Instruction

Break your audience into several groups and provide each group with a meter scale or measuring tape. Have each group measure the height of all its members and ask them to take an average for each range if your audience has wide range of age group. If possible provide a weighing machine and have each group, in turn, weight its members while the height is being measured. Ask each group to create a comprehensive bar graph showing average height and weight for each age range. They will add to the graph the length and weight for the rhino. A white board can be used to draw the graph. Take the average weight of the group.

	Greater one-horned rhino	Human
Weight - male adult	2,200 kg	Group average (kg)
- female adult	1,600 kg	-do-
Weight - at birth	65 kg	2-3 kg
Height - adult shoulder	5.75-6.5ft	Group average (cm)
Height - at birth	2ft	45-55cm

Discussion

Compare the weight of the rhino with that of the group. Find out how many individuals (average of the weight will vary according to the age group) together will equal the weight of a one-horned rhino.

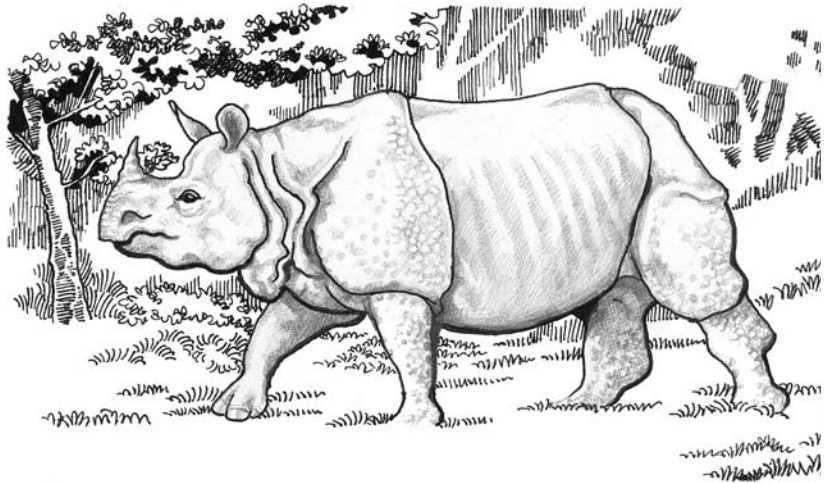


Activity 2. Crawl, walk and sprint

The rhinos are huge in size and mass but they can run short distance very fast. Greater one-horned rhino walk at the rate of 3 - 3.8 km/hour and they can run short distance at 40km/hour. The speed of the animal cannot be matched with its body structure.

Instruction

Remind your audience that a human baby, until it walks on two legs, uses both foreleg and hindleg for locomotion, which we call crawling in infants. Ask 4 or 5 volunteers from the audience to cover a distance of 10 meters using both arms and legs. Use a stopwatch to note the time taken for each person to cover the distance. Again ask them to cover the same distance walking and note the time taken. Using the following methods to calculate the crawling / walking speed of each individual. To find the speed in kilometers per hour, divide 36 by the number of seconds it takes to run 10 meters. For example, if it takes a person 10 seconds to cover a distance of 10 meters, that person is walking at a speed of 3.6 km/hr. ($36/10 = 3.6$ km/hr.)



Similarly ask the same volunteers to run 10 meters and calculate the running speed.

Discission

Why the rhinos are adapted to run fast? Can we match with the speed of rhino?

Activity 3. Communication

Animals in general use variety of communication means such as visual, vocal, smell, and signals. Communication involves supply of information as conveyed as sound, signals, chemical or visual by a sender to a receiver and the receiver decides how to respond. Vocal and chemical communications are very interesting with regard to rhinos. This activity will help to understand how rhinos communicate.



Instruction

Greater one-horned rhinos emit at least ten audible sounds to communicate. Ask your audience to form groups. Ask each group to make the following sounds and explain what it implies to a rhino.

Snort	like a steam engine, made separately or in series - keep away signal.
Honk	associated with head-to-head encounters.
Bleat	with a characteristic wavering cry - associated with submission.
Lip vibration	resembling the same sound in horses - associated with a comfort behaviour while feeding.
Roar	both between males and females and between females.
Squeak-pant	a high pitch with excitement - males during courtship chase.
Moo-grunt	A call between mothers and calves, a low intensity sound, which is heard over only a short distance.
Ultrasonic	communication - known with African rhinos.

Activity 4. Rhino Poo

Rhinos have poor eyesight but they have good sense of smell. They use piles of dung to leave "messages" for other rhinos. Each rhino's smell is unique. It can also tell a rhino if the other rhino is young/old/male or female. They also tell other rhinos that this is their territory.



Instruction

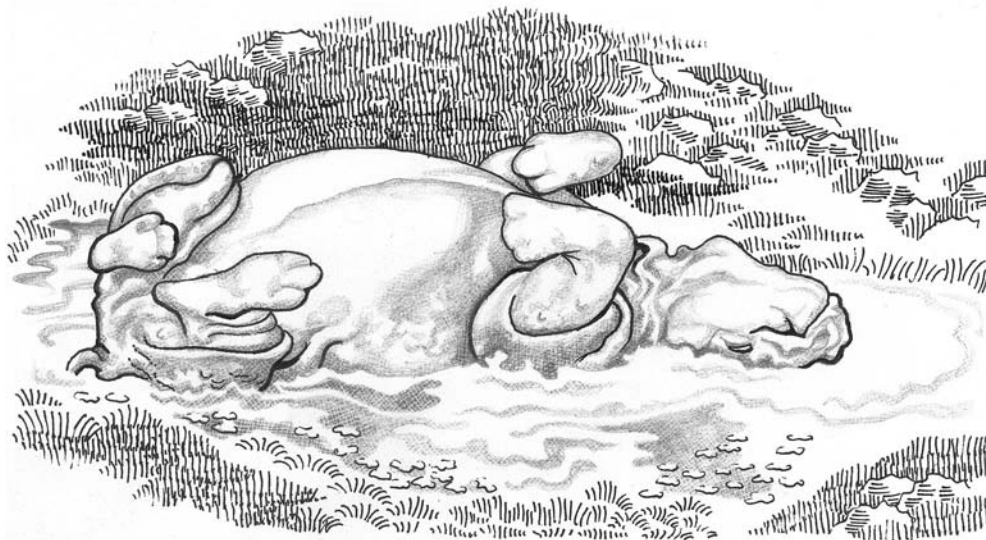
Wrap separately five or six objects such as soap, camphor, a piece of cake, stone, mint, asafetida, garlic, onion, ginger etc., with a white paper and number it. Place them on the table in a circle and ask them to take turn and smell it with out touching or lifting it. You may need 4 or 5 sets depending on your group size. Ask them to write the object names kept on the table individually against the code number given on the object. You can also have group leader for each group.

Activity 5. Wallowing

Roll about or lie relaxed in mud or water to keep the body cool or to avoid biting insects or spread scent is known as wallowing. This is a behaviour in bigger mammals and a typical behaviour in rhinos. We human relax (wallow) in the luxury of a hotel.

Instruction

Ask some volunteers from your group to demonstrate the act of wallowing. Also Ask them to demonstrate how we wallow in the luxury of a 5 Star hotel.



Asian Rhino in our culture

Human beings have built their culture largely through knowledge gained from Nature, which eventually became a value of society. Rhinos are part of nature and human beings have learned many things from rhinos which has become a part of human culture. Human beings, who have been associated with rhinos from time immemorial, are now threatened with extinction. To understand and address the issue of rhino conservation, it is essential that we consider manifold views and images that people have on rhinos, its problems and conservation. This will help us to apply the correct remedy required to mitigate some of the problems. Also, this exercise will establish the important role that rhinos have played and continue to play in the cultures of Asia and the world. This unit will help us to explore the cultural role of rhinos in human life.

Perspectives on rhinos differ from person to person and from place to place. Understanding these values and addressing them is vital to successful protection and conservation of rhinos. This session teaches what may happen to our cultural legacy if the rhinos becomes extinct.

Through the materials in this unit, people will examine the use of rhinos in arts, advertising and poetry in and around South Asia. Through these media, the important role that rhinos have played in the culture of humans will be established.

The rhino has been used as a popular symbol in most cultures around the world especially in Asia and Africa. Ask participants to work in small groups and to list examples of rhino symbols being used in their own culture. Ask them to categorize the examples under folklore, fairy tales, stories, art, drama, cinema, songs, advertising, literature, sports, religious symbols, placenames using rhino name, animal or plant names based on rhino, games, etc.

Give about 20 minutes to list specific examples on a piece of paper and turn this activity into a competition to see which group can come up with the most examples.

After having each group make the list collect all the papers and let the groups present the list one by one. Make a Table on the black board and assign marks for each example given by the group. The group with the highest score will be the winner. Afterwards conduct a discussion.

In Asia the following are some examples that could be mentioned:

Advertising:	Rhino water tanks
Stories/movies:	Never make fun of a rhino
Literature:	The soul of the rhino by
Proverbs:	Every rhinoceros is proud of its horn
Animal/plant names:	Rhino beetle
Place name:	Other example, Elephant road

Ask your participants for the reason to use rhino as a symbol in our culture?
What characteristics of rhinos lend themselves for use in so many different contexts?

4. Rhino problems and solutions

Understanding and acting

Rhino status, threats and conservation

How scientists study rhinos?

Rhino status assessment

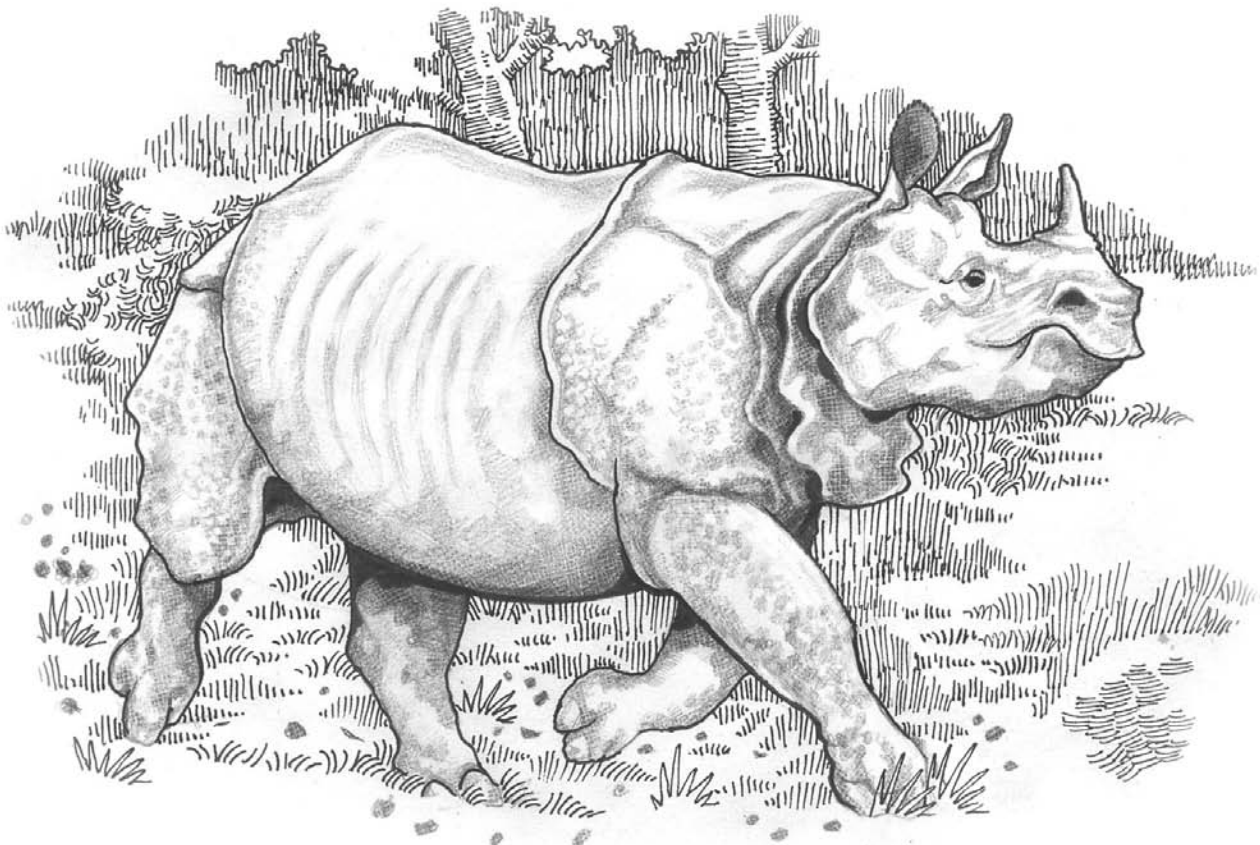
Rhino conference

Tips for planning education programmes

What to do? you can do

Understanding and acting

The objective of this unit is to help your audience understand rhino conservation initiatives taken by government, institutions and individuals in India. It is important that your audience learn about ongoing conservation programmes, which may help them to understand the complications of species conservation and the expertise required to save a species. By learning this they get clear views and ideas about rhinos to involve themselves in the future to support conservation initiatives. This unit has features on Rhino conference, understanding its status in the wild and some important conservation programmes in India.



Rhino status, threats and conservation

Appreciating the beauty and value of the Rhino is one thing; saving these animals from extinction is quite another. Imagine you were charged with the responsibility of coming up with a plan to save the One-horned rhino in a National Park. How would you do it? What questions would you need to ask? What information would you need to assemble to figure out your course of action?

Much of the work of threatened species protection is the job of conservation biologists. Conservation biologists are the people who document how many individuals of a given species survive in a particular place. They determine what resources are required to support a healthy population. Often, these requisite resources take a lot of time and effort to define, but living space is one of the most important components. They should also understand the biology of a species, and in addition the conservation biologist must be aware of the direct survival threats faced by individuals of the species. To what extent does habitat destruction, poaching, cultivation, or other human activities impact on their survival?

Unfortunately, it can take years to assemble that sort of information - years that an endangered species may not be able to spare. As a result, conservation biologists are often trying to beat the clock, working to develop effective conservation plans while the animals they study disappear before their very eyes.

Our Responsibility for Rhino conservation

For any successful project in saving species, a great deal of effort and commitment is required. Since animal habitats are being lost due to man-made activities, governments identify some existing natural habitats as potential protected areas.

Conservation biologists work specifically on the threatened species which government is concerned to protect. They find out the basic living requirements for the animals (food and water sources, resources for shelter, distance) and also determine the basic requirement for a population in a given area. They estimate number of animals in an area and monitor changes in those numbers, to detect any declines or increase in population as time passes by. It is very difficult to collect all such details and it requires a great deal of time, money and effort.

After studying the needs of a particular species, such as One-horned rhino, biologists try to understand and then determine the requirements for the whole population which occupies the upcoming National Park or Protected Area. This work is essential to save a species from extinction.

Apart from that, scientists need to understand the threats that affect species survival. Threats that affect rhinos are habitat loss, poaching, scarcity of food, diseases and other human disturbances.

National Parks and Wildlife Sanctuaries

Most of the one-horned rhinos occur exclusively within the Protected Areas in India (West Bengal, Uttar Pradesh, Assam) and Nepal. The IUCN SSC Asian Rhino

Specialist Group reports (2013) that about 3,339 rhinos live in the above areas. Ask your audience to refer the map given in this tool kit and ask them to locate the National Parks and Wildlife Sanctuaries and also guess the number of rhino that live there. The list of Protected areas and estimated number of individuals reported after 2010 are:

India	Area	# Rhino (year)
Kaziranga National Park, Assam	430km ²	-- 2290 (2013)
Orang National Park, Assam	79km ²	-- 100 (2012)
Pobitora Wildlife Sanctuary, Assam	38km ²	-- 93 (2012)
Manas National Park*, Assam	391km ²	-- 22 (2012)
Katerniaghat Wildlife Sanctuary*, Uttar Pradesh	28km ²	-- 4-5 (2011)
Dudhwa National Park, Uttar Pradesh	490km ²	-- 31 (2011)
Jaldapara National Park, West Bengal	216km ²	-- 186 (2012)
Gorumara National Park, West Bengal	80km ²	-- 42 (2013)
Nepal:		
Chitwan National Park	932km ²	-- 503 (2011)
Bardia National Park*	968km ²	-- 27 (2011)
Sukla Phanta Wildlife Reserve*	305km ²	-- 7 (2011)

*Re-introduced

Where all rhino occur in West Bengal

West Bengal has 20 Protected Areas (6 National Parks and 14 Wildlife Sanctuaries). But rhinos occur only in two PAs.

1. Jaldapara National Park

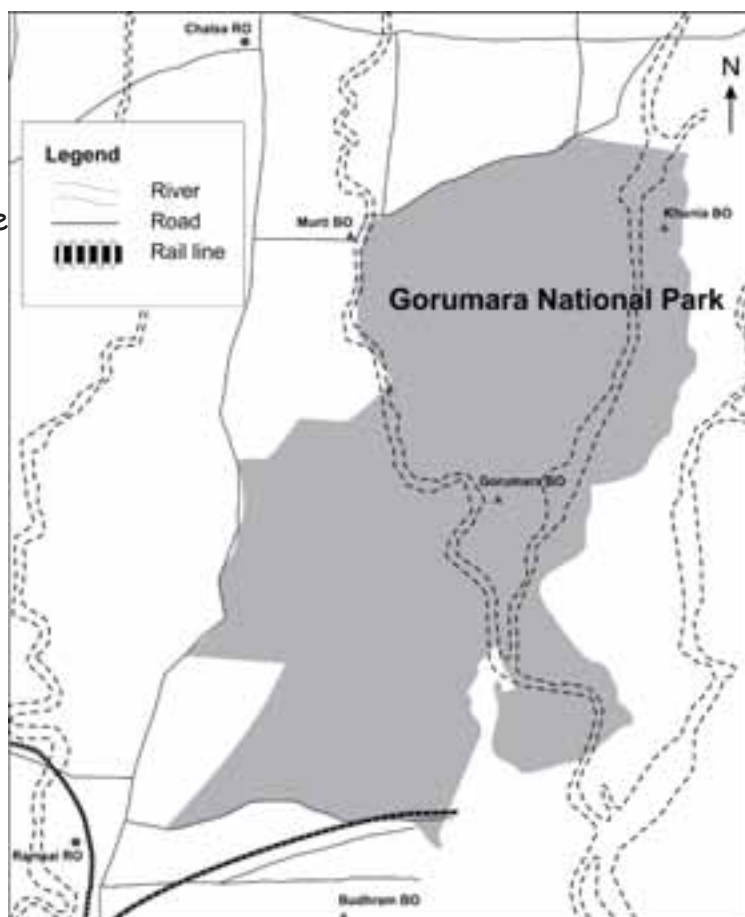
(formerly Wildlife Sanctuary), Alipurduar District.

Jaldapara NP has a total area of 216 km². This was established in the year 1941 as a Wildlife Sanctuary and declared as a National Park in May 2012. At present the Rhino population is estimated as 186. This is the largest population in India after Kaziranga NP, Assam.

2. Gorumara National Park

Jalpaiguri District.

Gorumara NP has a total area of about 80 km². This was declared as a Wildlife Sanctuary in 1949 until then it was a reserve forest. It was established as a National Park in 1994. The present Rhino population is estimated to be 42 (2013).



How scientists study rhinos?

One of the important things to learn about a species such as rhino is how many individuals are there over different periods of time in a given area. There are two important aspects to knowing "how many" ... one is how many Rhinos are in every locality and in total. If we count rhinos in a distinct locality where they have the ability to interact with one another, particularly for breeding, then the group of rhino is called a "population", although it may or may not be functional (viable), or sustainable (able to increase and survive over the long term). Another count required is a total of all rhinos in all localities. If there are less than an adequate number to go on reproducing and surviving, then steps have to be taken to fix the problems that prevent healthy growth.

Why estimate rhino populations?

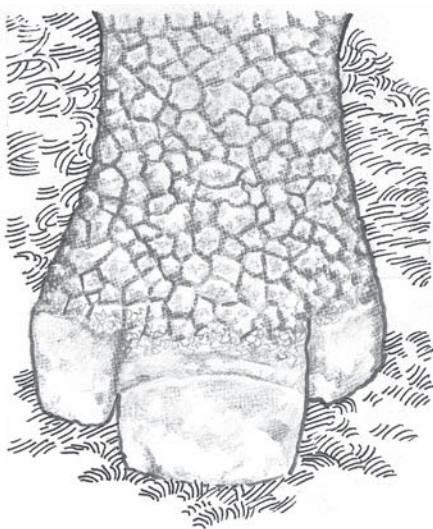
Knowledge about the population size of an animal is essential in order to practice effective wildlife management. When the population size of a species declines dramatically, it may be declared as a "threatened species". Thus, accurate population estimates are essential because they warn wildlife managers about problems in the habitat so they can prevent further decline.

Counting methods

In order to estimate the total number of a species in a given area, counts of individuals are organized annually or at a specific periodicity using different methodologies. The periodic count of a population is called a "census". A census may be carried out also to assess the health of a forest or Protected Area.



It is almost impossible to count rhinos in an area because:



1. All rhinos in an area cannot be observed during the counting period.
2. The whole area of forest habitat cannot be physically surveyed for counting rhinos.
3. Not all rhinos in an area can be individually distinguished in the field.

Some methods to estimate rhino population are:

1. Direct total count method.
2. Mark recapture method
3. Camera trap method



In order to explain the basic principle of census techniques you can try the following exercise with your audience. Take your audience to your campus garden or a wooded area near your school or venue. Ask them to observe some common animals like birds, squirrels or butterflies.

Instruction

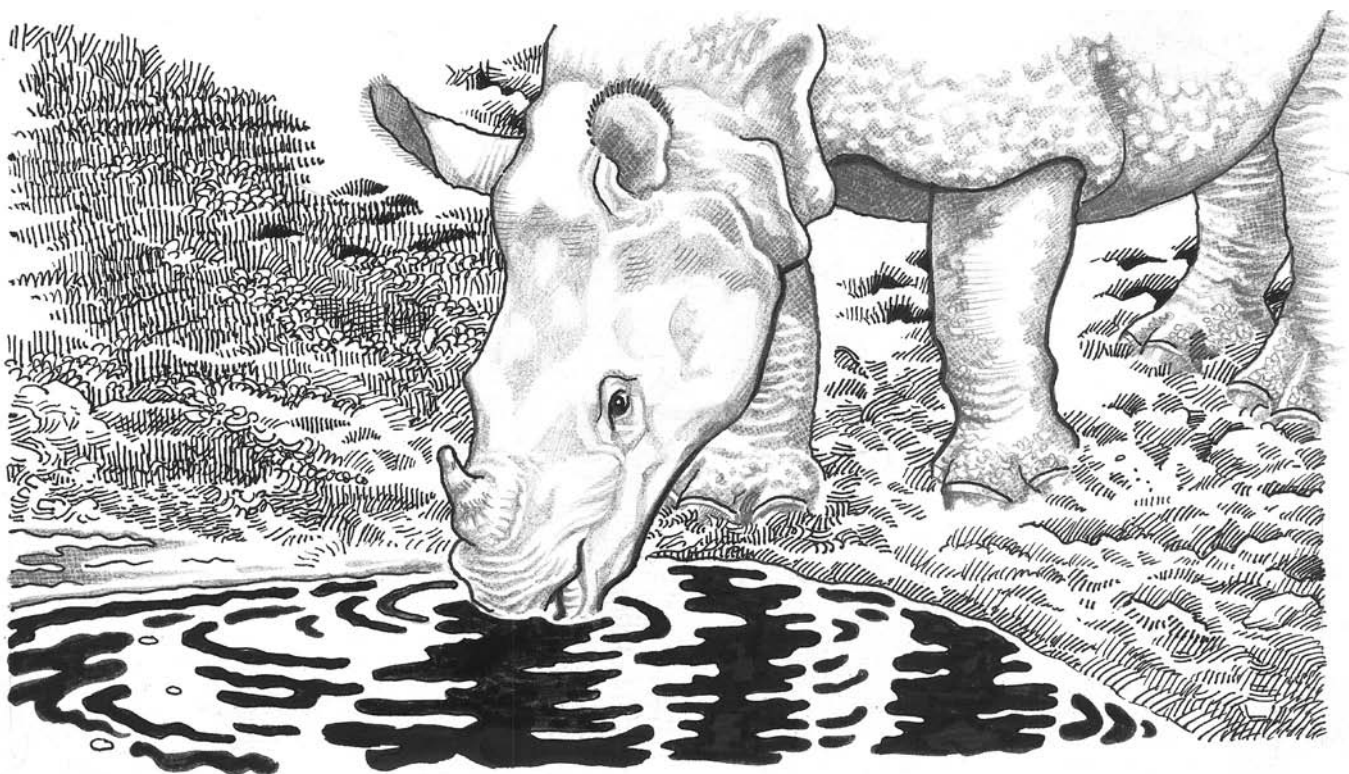
Divide them into groups and ask them to count the total number of individuals of a particular species, selected by you or their group. Divide students into groups and allot them specific areas to cover. Let each group get their own area to do this exercise. Tell them that they should observe very keenly the movements of the target species and try to count the actual number of individuals in that area.

Give them 15 minutes to count as many individuals as possible. For an accurate count each animal should be counted only once, and for that all counted individuals should be remembered by noting specific identity marks. If your area is very large, it is not necessary that they should survey the entire area. Instead, as a group they can survey a small area and then the data obtained in a given area can be used to estimate total number of animals that could live in the whole area. For example, if you have covered 25% of the total area and if you have counted 10 individuals of your target species then the total number in that area could be 40 if the whole area contains a similar habitat.

Understanding rhino needs

Biologists need to understand ecological or habitat requirements of rhinos. These can be assessed at different levels, using various field methods:

1. Observations can be made at the level of individual rhino to understand their ecological requirements from their behaviour in the wild. Food preferences and requirements can be understood simply by observing feeding habits in the wild.



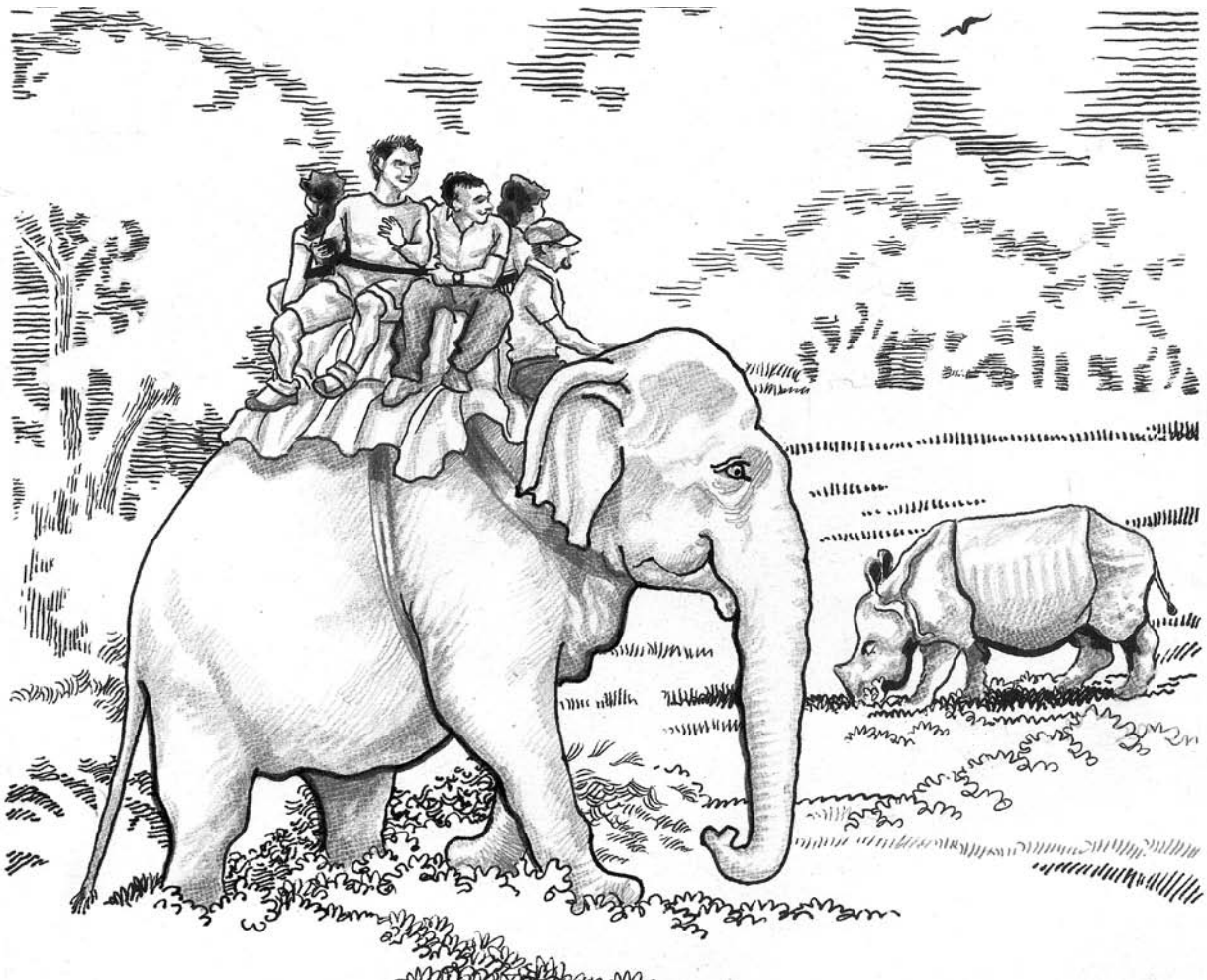
2. Over large areas, mapping where

- actually the rhinos occur,
- they expand their range,
- they get locally wiped out,
- they survive over time, provides information on their large-scale habitat requirements can be obtained.

Tell your audience that biologists in the study site follow certain rules very strictly. Some of the rules are given below. Instruct them to follow the rules very firmly so that they can experience a real census situation.

- Walk slowly and quietly. What you consider quiet may in fact be noisy to an animal. There should be no talking, whispering, clearing throat, laughing, spitting, breaking of branches, etc.
- Stop and listen frequently.
- Keep track of wind direction. You want to be downwind from the animals you are looking for. A thread or a leaf can tell you wind direction. Observe the movement of leaves to see the wind direction. If the wind is very gentle you can find the direction by holding a thread so as to read the direction of the wind.
- No smoking or other smell-producing actions which would indicate your presence.
- No bright clothing as it will attract attention of the animal.
- No radios. Music will scare animals away.

(Methods adapted from Wildlife Field Research and Conservation Training Manual. Alan Rabinowitz, WCS, 1993).



Basic census methods

Direct count

The term "direct" itself refers counting the actual animal. This is the most obvious way to determine the population size of a species in a given area. In direct count an attempt is made to count all the individuals of the species in a given population.

Methods relying on animal signs and related objects

These methods have varying utility. The objective of these methods is to know the presence or absence of a species in a given area. Fecal droppings, tracks, tree markings are some examples of animal signs. Methods which rely on signs of the animal can also be used to indicate the trends in a population.

Cost involved in census

It is difficult to estimate the actual cost involved in the census. It depends on the methods adopted. The cost of a simple census to find out the general population trend of a species in a given area will not be so high. However, census which requires 90 - 95 % accurate information on the total number of individual species in an area employing camera trapping is very expensive. In some cases census methods have to be determined on cost basis due to budgetary concerns and these methods result in less accurate data. Population estimations also can be full time research projects.

Discussion questions

Experts working on wildlife census develop keen observation sense. Ask your audience what are the different ways to develop observation skills. You can also play 'spots and stripes' or 'colour challenges' games to understand observation skill. See below the instructions for the games.

Rhino status assessment

In this section, participants will become acquainted Rhino experts, field biologists, wildlife managers, conservation biologists and representatives of academic institutes working on rhino conservation. Tell participants that the methodology for this assessment is based on the collation and analysis of existing information, and application of IUCN Red List Categories and Criteria, and species mapping using GIS software. Tell them that the assemblage of experts is to provide the most current information about rhino in order to assign species to IUCN Red List Categories of Threat (See appendix 1 for structure of Categories), formulate broad-based management recommendations and develop more comprehensive management and recovery programmes.

Introduction to assessment process

In an assessment workshop participants will be divided into groups depending on the delegates, State or country representation (Example: West Bengal, Assam, Uttar Pradesh) or their academic expertise (Example: rhino ecologists, taxonomy, PA manager). The group members will be trained in Species Information Service (SIS), an online centralized data storage programme fully compatible with IUCN Red List.



IUCN status is deduced using species information available that is entered in SIS and by applying IUCN criteria. The rationale behind recommendations, of the criteria used for deriving a status for a species, as well as details of other information pertinent to the species will also be derived. After determining the status and using other information available in SIS database and participants' experience, the data will be analyzed to make recommendations. A report is compiled about what actions need to be taken to conserve the species.

After explaining the status assessment process, give them 10 minutes time to read the example species given in the appendix. Plan a discussion to make them understand how the status of a species is assessed.

Discussion

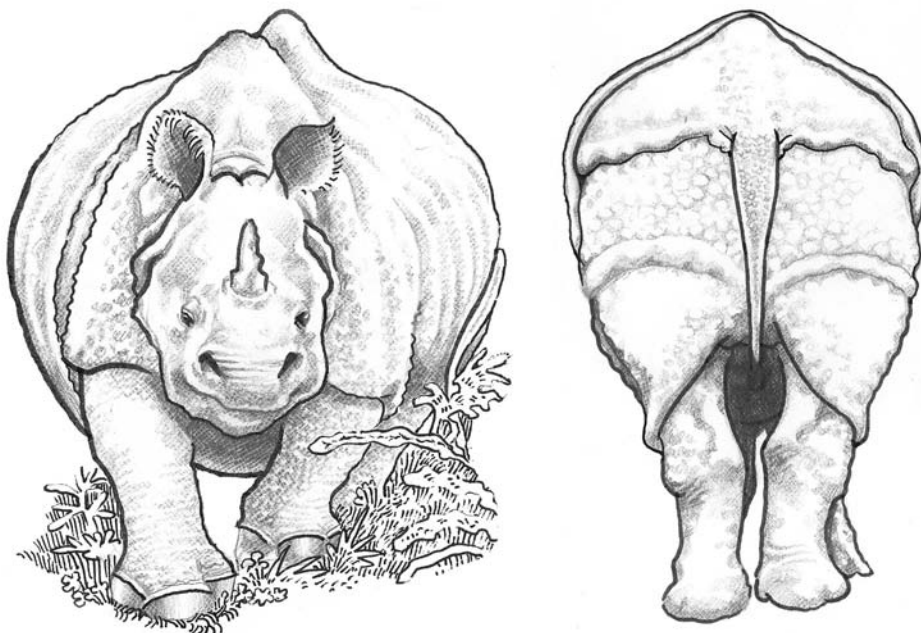
What information about the species might tell us if the species is in trouble? (Look at the information under Red List Status. If the population of the species is decreasing due to poaching and other threats like reduction in habitat quality and habit loss, this is a sign of trouble. The species living area is disappearing... that's trouble.)

What about other threats? Read the threats and discuss with your group if they think these threats are serious and why?

What about population trends? What are the factors that influence population trend? This is another topic you can discuss with your group.

Read the assessment rationale for the status *Rhinoceros unicornis* (Appendix 2) after you have discussed all these things. Now you can begin to understand how conservation biologists figure out these things. Although it is a high level subject, common sense also goes a long way in understanding species extinction.

Encourage your group to visit www.iucnredlist.org and search for other four rhino species.



Rhino Conference

Conference on protection and management of rhino populations

Ask your participants to assemble in groups. Give each group the following list, or write it poster size in advance and place it in a place where it is easily examined by the entire group.

Tell the groups that their job is to consider which of the eleven actions are most important to give protection and to manage properly in the rhino areas. Each group has 100 points and it must assign its points between the 11 actions, to whatever extent it sees fit. Depending on time and the level of your audience, you may wish to have them assign points only to the major actions, or divide points among all the secondary actions listed under the 11 major ones. It is important to explain that one group may decide that all nine actions are important and therefore to assign an equal number of points to each. Alternatively, a group may decide that three actions are so important that sixty of the 100 points should be divided among those three. Stress that the goal is to consider the actions in accord with the information on the existing problem in a Protected Area and to make well-reasoned decisions about priorities. These sorts of decision models how an action is prioritized in a conference with regard to protect and manage Rhino populations.

Pool all points and develop a National level decision made by the groups choice about what efforts needed to make in India to conserve rhinos. Have each group make a presentation in which it explains how its points were allocated. Keep a class tally on a black board as a group makes their presentations. After the last presentation, assess the number of points received by each action. Ask the group to assess the point totals and discuss whether they feel those totals reflect the true priorities to meet rhino conservation. Make sure that an action which may be very important in one location may get least priority in another location. If any actions did not receive points, ask whether they should be dropped from the list.

The following are some recommendations for rhino conservation (taken from different source). The workshop recommendations suggest measures to improve management and protection of rhino habitats.



Recommendations for the management and protection of rhinos are:

- 1. Conduct survey, monitoring**
 - 1.1. Monitoring of rhino habitat and its population through use of satellite imagery at periodic intervals and undertaking censuses at two-year intervals.
- 2. Capacity building / training**
 - 2.1. Training of personnel on issues related to management of habitat and desired level of intensive protection.
 - 2.2. Developing research capabilities of local institutions for undertaking research on items like reproduction biology in small pockets, grassland ecology, habitat utilization, etc.
 - 2.3. Management training to raise PA staff potential.
- 3. Carry out habitat restoration**
 - 3.1. Relocation of enclave villages from Protected Areas on mutual understanding.
 - 3.2. Provision for diversion of controlled discharge of existing perennial streams into abandoned river courses in the park for rejuvenation of former prime grasslands.
 - 3.3. Reduction of grazing pressure through erection of barriers and development of silvo-pastoral plantations on community lands.
 - 3.4. Extension of Protected Areas for accommodating of straying rhinos and for providing safe corridors for them.
- 4. Population management**
 - 4.1. Provision of suitable highlands for providing shelter to marooned individuals in flood-prone areas.
 - 4.2. Translocation of breeding stock of Indian rhino into some small populations to ensure recovery to viable levels and survival through generations in the wild; and reintroduction of Indian rhinoceros into some areas of Assam, Uttar Pradesh and West Bengal in its former range.
- 5. Manage invasive alien species**
 - 5.1. Reduce invasion by alien plants into grasslands affecting some populations
- 6. Raise awareness and do education outreach**
 - 6.1. Development of appropriate site-specific interpretation facilities and raising of awareness through an intensive campaign.
 - 6.2. Raise awareness among villagers - about impacts from using the forest - create positive image of rhinos
 - 6.3. Create community based conservation development and planning groups
- 7. Improve law enforcement**
 - 7.1. Improve protection - increase check-posts at forest entry/exits - improve guard patrol system - provide extensive law enforcement training
 - 7.2. Improve provisions for rangers - increasing ranger salaries - provide patrol food allowance - provide field equipment.
- 9. Improve PA management**
 - 9.1. Establish regulated community user zones - set up community/PA committee for zoning - agree, map & mark zones for NTFP collection - establish forest use monitoring system - develop forest resource database including impacts.
 - 9.2. Intensification of anti-poaching drive.
- 10. Improve collaboration**
 - 10.1. Provision of veterinary care for the Indian rhino through establishment of a properly equipped veterinary unit in all Protected Areas.
 - 10.2. Provision of social facilities for park personnel and adequate compensation for disablement.
- 11. Captive management**
 - 11.1. Rational utilization of stock at different managed breeding centers for breeding to achieve the desired level of heterozygosity and subsequent release in the wild.
 - 11.2. Development of an *in situ* orphanage center for rehabilitation of rescued animals from the wild.



Tips for planning education programmes

After the educators skills training programme you can plan education programmes at your place for your community and students. Combining the activities that you learned in the training programme with the 'Rhino' education packets that has, leaflets, stickers, masks, placard, *rakhi* and a booklet, you can plan a half day, full day or two days education programme for groups of any age.

Rhino education packets are not effective if they are simply given out as souvenirs. It should be used as part of a systematically organized educational programme, featuring a variety of activities such as drama, debate, mime, games and any other activity that you learned during the training, focused on the drama theme. Used in such a way, the knowledge imparted will be more effective.

A full-fledged programme will be better organized if there is an educator or person with experience in facilitating an event with your audience, and a few other helpers. There are many things to do even in a simple programme.

You may need volunteers to help you prepare a short presentation from the information given in the kits and packets, and to help announce and coordinate the activities which are possible with the packet. All these activities are designed for maximum fun along with emotional and intellectual impact.

How to use the packet

- *Rakhi*-tying ceremony with participants using the *rakhi* enclosed in their packet (the *rakhi* can be a symbol of the participants committing themselves to conservation)
- A marching demonstration and/or standing still chant where participants put on their masks and hold up their small placards in a public area (this is also a good photo opportunity which will please the press and also be more interesting for readers than a set of dignitaries on a dais or other photos typical of such events)
- Quiz programme to quiz participants on the information contained in the booklet
- At least one or two games from the *Rhino teaching tool kit* to be played with the participants
- A pledge card included in the *Rhino teaching tool kit* (see Appendix 3); they



should be given an opportunity to sign the pledge card and state their pledge.

- If a painting or drawing competition is conducted or a debate, one or more of the themes should be concerned with Rhino conservation themes.

Upon conducting your own education programme,

- After successful completion of the programme make a brief report to send to Zoo Outreach Organization either an email (zooreach@zooreach.org / badaniel@zooreach.org) or hard copy.
- Photographs of the event are important in our programmes and are intended for publication and display on our website.
- Sometimes in our theme-based programmes sponsored by an international organization like Ocean Park Conservation Foundation, these photos end up not only in our magazines and newsletters but also on many other websites with many hits or a yearly report.
- Photos of participants in action, which can be identified as part of the programme and associated with the theme, are preferable to the usual group photographs. Best is when participants are wearing their masks or carrying their placards or tying rakhi.

Credits: be sure the host, organizers and sponsors, both local (ZOO) and international (OPCFHK) are included in your acknowledgements and in press.





What to do? You can do

Once people start appreciating the critical role of Rhino play in ecosystems, as well as their attractiveness and charming nature, their next question should be, "How can I (we) make a difference?". It is easy to become overwhelmed by the magnitude of the problems Rhino face and people may feel helpless in the face of the problems. They may ask, "I'm only one person (or, we're only a small group), what can I / we do?" It is important for the group leader to be able to cite examples of situations in which one person, or a small group of people, have made a difference to wildlife survival: whether the survival of a single animal, a small population, a landscape, a lake or river, an ecosystem or an entire species. The scale is not critical; the successful application of conservation efforts is what counts.

What to do?

Instructions for group leaders

1. Ask people: What can we do to save rhino and the places where they live?
2. Post the list of actions for your audience to read, or read them aloud. The list supplied below is comprehensive and you will need to edit it in order to eliminate those that are not relevant to the particular place and audience with whom you are working. (Alternatively, as a learning exercise, you may ask the group to help you decide which actions are, and are not, relevant to your situations.)
3. Tell your audience that you would like every person to pick at least one, preferably two, actions to take on behalf of rhino. The actions(s) can be pursued by individuals, small groups or the entire audience. But make sure to provide the group(s) with whatever materials are needed to get them started.
4. Give every participant a pledge card (See appendix 3) on which s/he will make a pledge to take action on behalf of rhino. Have the participants write their chosen actions on the card.
5. After a period of several weeks or a month, hold a reunion and ask people to prepare brief presentations to inform others about the action(s) they have taken.

The actions may be presented through posters, drawings, oral presentations, booklets, drama or song. Ask participants to evaluate their efforts and encourage them to pursue them or choose others.

Things you can do to HELP the Greater one-horned rhino

- ✍ **Educate** yourself about the benefits of conservation and the important ecological role of rhino. Share the information with your friends, family and local community.
- ✍ **Start** a Rhino club in your school or community to hold performances that teach people about Rhino conservation.
- ✍ **Conduct** education programmes for your student or community using the training materials.
- ✍ **Write** and perform a play or a song encouraging people to save Rhino.
- ✍ **Create** a sign or poster for your school, community center, protected area or local zoo explaining why Rhino conservation is necessary or beneficial to your community.
- ✍ **Learn** the names of plants eaten by Rhinos and create signs or booklets to teach others.
- ✍ **Post** signs stating local wildlife laws pertaining to rhino conservation. Make sure the signs explain why the laws are beneficial to people as well as wildlife.
- ✍ **Write** a letter to local or national government officials telling them why saving rhino is important to you.
- ✍ **Write** a letter or article for a local newspaper telling why saving Rhino is important to your community.
- ✍ **Invite** a local scientist, reserve manager, or other person who cares about Rhinos to give a talk in your community. Publicize the talk to encourage as many people to come as possible.
- ✍ **Do not** destroy or discourage destroying food plants of rhinos.
- ✍ **Do not** buy products made of animal body parts especially rhinos.
- ✍ **Report** it to the forest officials, if you come across any diseased, injured or dead rhino.
- ✍ **Become a member** of an organization dedicated to saving Rhino and their habitats.

In the end, we hope that your audience has a better understanding and appreciation of Rhino, and has decided to take steps to protect them.

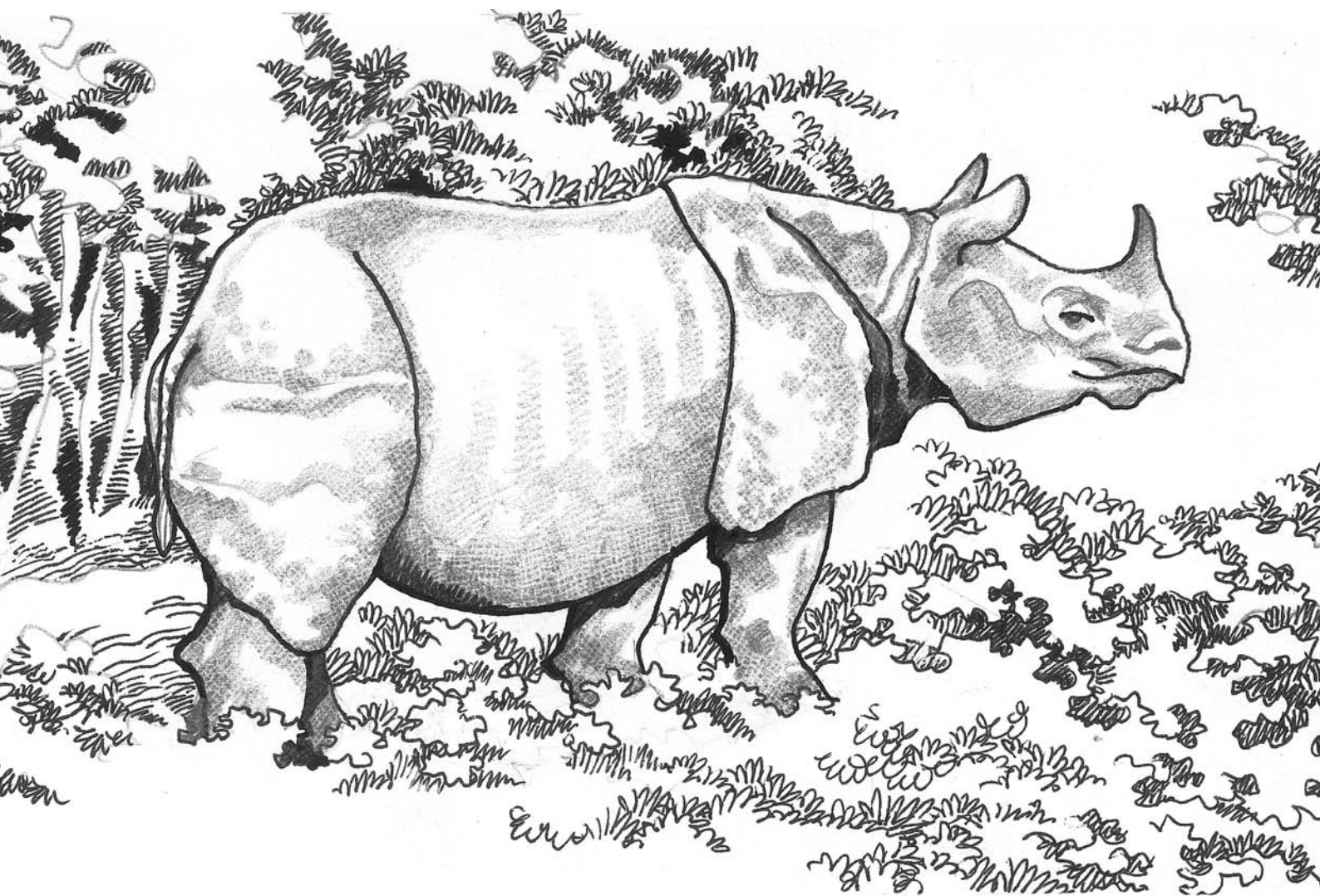
Appendix

1: IUCN Catagories

2: Rhino status assessment

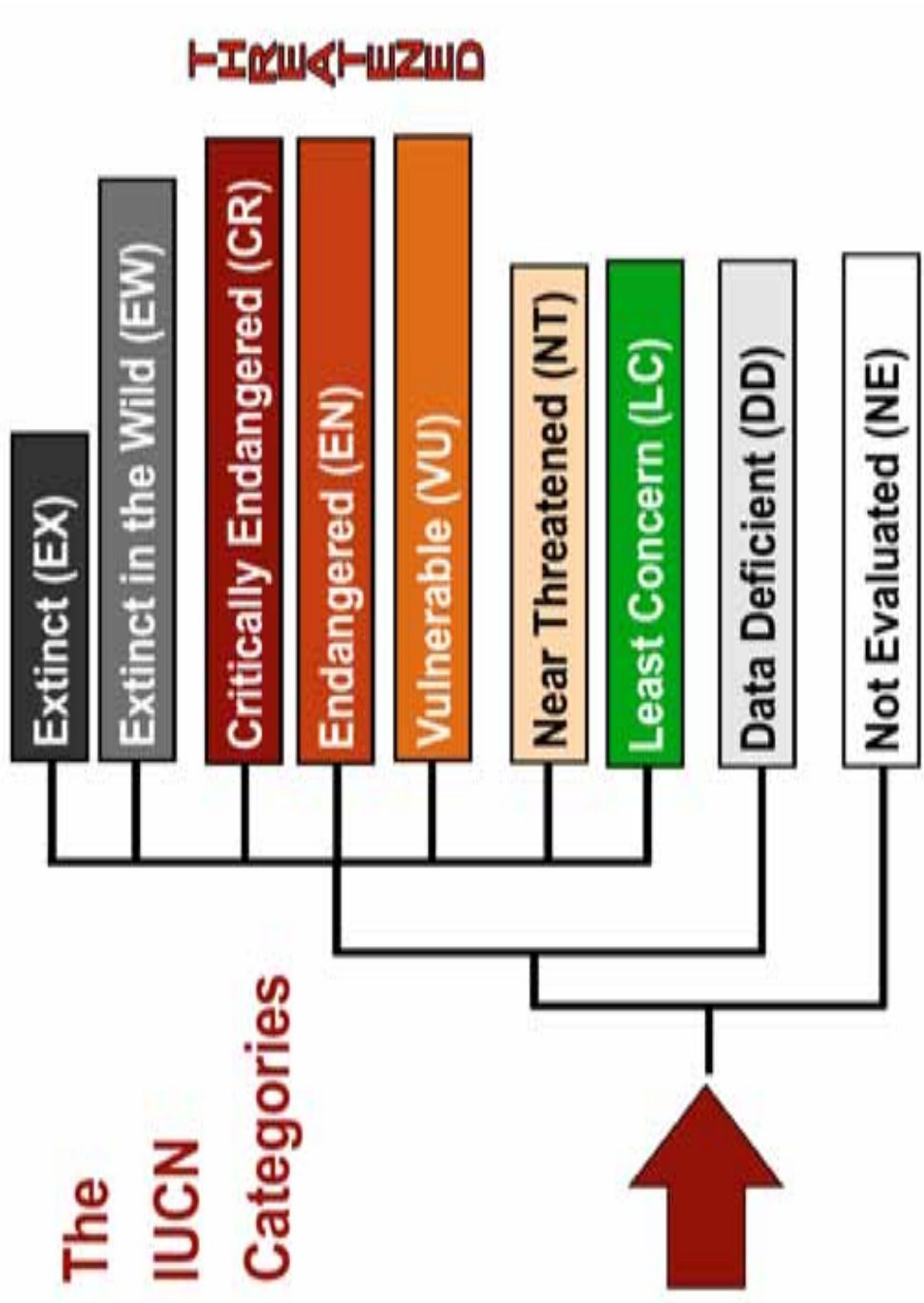
3: Pledge card

4: Rhino mask



Appendix 1

IUCN Categories



Appendix 2

Rhino Status Assessment

Taxonomy

Phylum	Class	Order	Family
CHORDATA	MAMMALIA	PERISSODACTYLA	RHINOCEROTIDAE

Scientific Name: *Rhinoceros unicornis*

Species Authority: Linnaeus, 1758

Common Name(s): English – Indian Rhinoceros, Greater One-horned Rhino, Great Indian Rhinoceros

Assessment Information


Red List Category & Criteria: **Vulnerable** B1ab(iii) ver 3.1

Justification: The Greater One-horned Rhinoceros populations are increasing overall due to strict protection, especially in India. However, some populations are decreasing, especially in Nepal and parts of northeastern India. The species is currently confined to fewer than ten sites, with a total extent of occurrence of less than 20,000 km². There is a continuing decline in the quality of habitat, projected to continue into the future, which, if not addressed, will affect the long-term survival of some of the smaller populations, and could jeopardize the further recovery of the species. Its populations are also severely fragmented, and with over 70% of the population in Kaziranga National Park, a catastrophic event there could have a devastating impact on the status of the species.

Range Description: Historically, the Indian rhinoceros once existed across the entire northern part of the Indian subcontinent, along the Indus, Ganges and Brahmaputra River basins, from Pakistan to the Indian-Burmese border, including parts of Nepal, Bangladesh and Bhutan (Foose and van Strien 1997). It may also have existed in Myanmar, southern China, and Indochina, though this is uncertain. The species was common in northwestern India and Pakistan until around 1600, but disappeared from this region shortly after this time (Rookmaker, 1984). The species declined sharply in the rest of its range from 1600-1900, until the species was on the brink of extinction at the beginning of the twentieth century.

Currently, the Indian rhinoceros exists in a few small subpopulations in the Nepal and India (West Bengal, Uttar Pradesh, Assam) (Foose and van Strien 1997; Grubb, 2005), with an unsuccessful reintroduction of a pair in 1983 into Pakistan.

Countries: India; Nepal

Population Trend:  Increasing

Conservation Actions: The species has been included on CITES Appendix I since 1975. The Indian and Nepalese governments have taken major steps towards Indian Rhinoceros conservation, especially with the help of the World Wide Fund for Nature (WWF) and other non-governmental organizations.

Indian Rhino populations occur almost exclusively within and around protected areas. In India, the species occurs in Kaziranga National Park (World Heritage Site), Manas National Park (World Heritage Site in danger), Dudhwa National Park (re-introduced population), Karteniaghat Wildlife Sanctuary, Orang National Park, Pobitora Wildlife Sanctuary, Jaldapara Wildlife Sanctuary, and Gorumara National Park. In Nepal, the species occurs in Royal Chitwan National Park, Royal Bardia National Park (re-introduced population), and Royal Suklaphanta Wildlife Reserve (a very small re-introduced population). Strict anti-poaching measures are needed to maintain all of these populations. It is also important to reduce human-wildlife conflicts around these areas, and this might involve fencing. Many of the areas also require targeted programmes to control invasive plants, to prevent the spread of woodland, to safeguard wetlands through appropriate water management, and to limit the extent of grazing by domestic livestock. In Pobitora, specific recommendations have been made to increase the quality of feeding habitat of rhino within the sanctuary through meticulous manipulation and checking livestock grazing (Sarma *et al.*, in press). Water holding mechanisms within the sanctuary during winter are crucial in terms of keeping moist grassland available in winter seasons, thereby reducing the number of rhinos straying out of the sanctuary and thus exposing themselves to poaching (Sarma *et al.*, in press).



The area of Kaziranga National Park has officially been extended, although animals had access to this area previously as the original park area was not fenced. In West Bengal (Jaldapara and Gorumara), there is a programme of habitat improvement in old teak areas, weed control is being carried out in 50-60 ha annually.

With the support of the IUCN SSC Asian Rhino Specialist Group, an Indian Rhino Vision 2020 and a Nepal Rhino Action Plan have been developed. These cover a number of important and specific conservation measures, including: translocating rhinos to bolster struggling populations (e.g., Manas National Park) and to start new populations; improving security around rhino populations and reducing poaching; assessing habitat status and management needs; expanding available habitat through active management; improving protected area infrastructure; training staff in specific rhino conservation techniques; reducing human-wildlife conflicts; involving local people in rhino conservation; and implementing education and awareness programmes. Overall, there is a need for further reintroductions, thereby reducing the concentration of over 70% of the individuals in one large population.

Citation: Talukdar, B.K., Emslie, R., Bist, S.S., Choudhury, A., Ellis, S., Bonaf, B.S., Malakar, M.C., Talukdar, B.N. & Barua, M. 2008. *Rhinoceros unicornis*. The IUCN Red List of Threatened Species. Version 2014.1. <www.iucnredlist.org>. Downloaded on 16 March 2014.



Appendix 3

 **PLEDGE CARD** 

The Greater one-horned rhino
Conservation + Education Training Workshop

I, _____ pledge to practice what I learned in this training by committing myself to do the following two actions:

1. _____

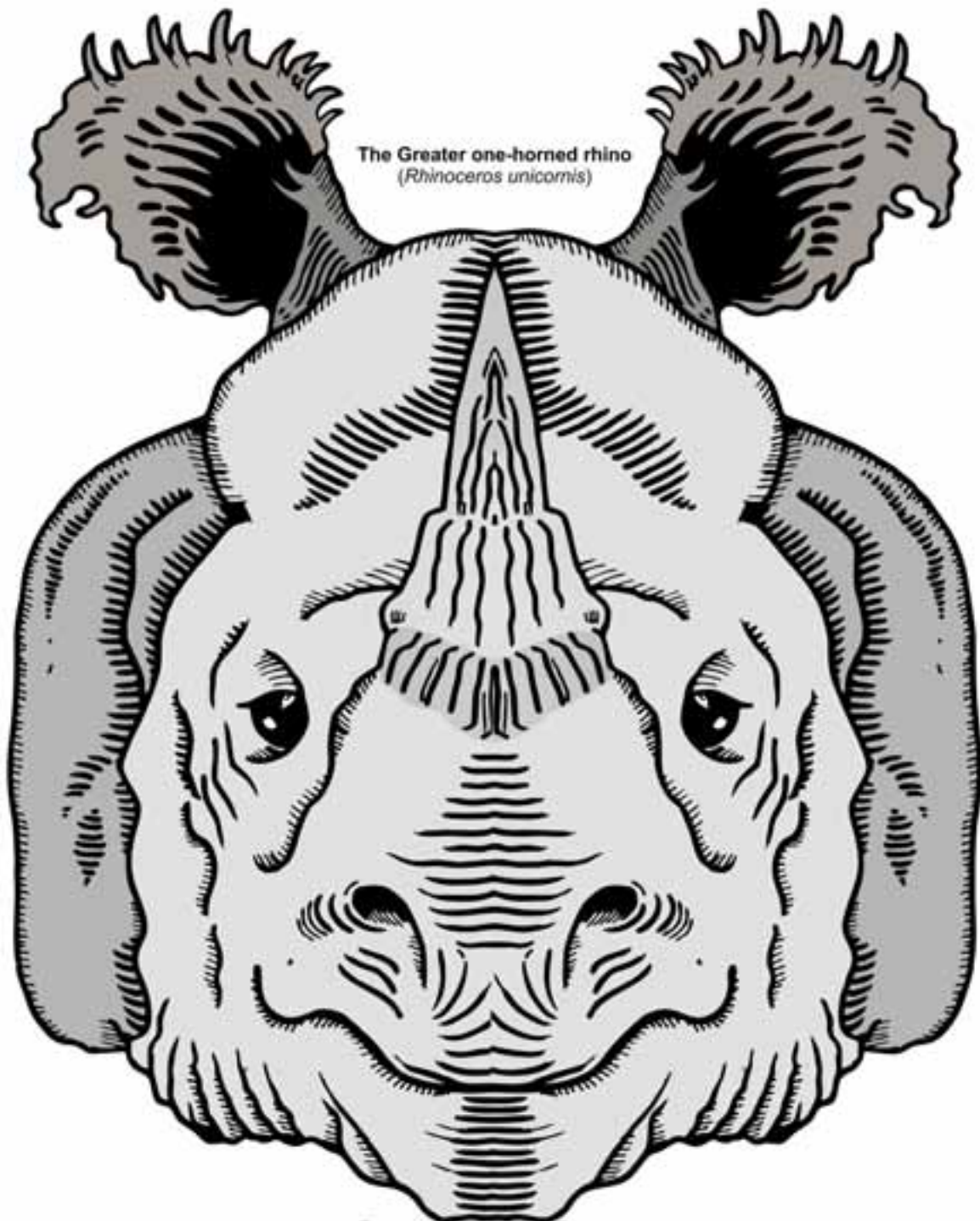
2. _____

Date _____ My Signature _____

Name of witness _____

Signature of witness _____

Appendix 4



The Greater one-horned rhino
(*Rhinoceros unicornis*)

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ভারতীয় এক শৃঙ্গী গন্ডার

Ocean Park Conservation Foundation, Hong Kong

As Ocean Park's conservation arm, Ocean Park Conservation Foundation, Hong Kong (OPCFHK) is committed to advocating, facilitating and participating in effective conservation of Asian wildlife, with an emphasis on Chinese white dolphins and giant pandas as well as their habitats through partnerships, fundraising, research and education. It envisions a world where Asian wildlife remains biologically diverse under the stewardship of humans, corporations and governments. <http://www.oceanpark.com.hk>



Zoo Outreach Organization, Coimbatore, India

Zoo Outreach Organization (ZOO) is a Positive, Constructive, Practical, Scientific, Sensible and Sensitive Conservation, Education, Research and Animal Welfare Society. ZOO reaches out to zoo personnel to give them things they need to improve their animal management. ZOO does many other things besides work with zoos. The organization hosts and runs five networks of field biologists for invertebrates, amphibians, reptiles, bats and rodents, a full fledged IUCN SSC South Asian Invertebrate Specialist Group, as well as a regional branch of the IUCN SSC Conservation Breeding Specialist Group and a regional network of zoo educators of South Asia. ZOO's specialty is zoo and conservation education. Over the years the organization has conducted many training courses in different states, countries and even continents and brought out many publications of packets, books, posters and other educational materials. <http://www.zooreach.org>

