

Climate Change Working Groups

SAZARC participants formed country-based working groups of India, Bangladesh, Sri Lanka, and Nepal with Afghanistan, Pakistan and Bhutan working together. The groups assessed animals in their own zoo collections to ascertain which species were more vulnerable to climate change with a focus on education and conservation.

Nepal Working group

How susceptible to climate change are the species in your collection?

GHARIAL

SENSITIVITY TO CLIMATE CHANGE

Specialized habitat:

- Found in running fresh water river banks. Effect of flood, pollution, pesticides

Narrow environment tolerance:

- Specific niche/habitats

Environmental triggers:

- If temperature varies, sex ratio alters
- Early flooding: Sweeping of nesting habitat
- Extreme flooding: Sweeping of small babies from very turbid water of flood. Babies cannot withstand the turbid water of landslide

Interspecific interaction: less availability of fish

Rarity: only 81 wild individual, in scattered population in Nepal.

POOR ADAPTABILITY

Poor dispersal ability:

- Only running fresh water
- Construction of dams
- Disturbance from people

Poor evolvability:

- High alteration in sex ratio
- Inbreeding



Species sensitivity to climate change - Nepal working group

EXPOSURE TO CLIMATE CHANGE

The Uneven sex ratio without alteration of temperature

Early flooding

Species that will be increasingly important for conservation.

India Working Group

Members: Amitabh Agnihotri, R.K. Sahu, Jasbir Singh Chauhan, Anil M. Anjankar (Presenter), Karunapriya, Markandaiah, B.A. Daniel

Species	Sensitivity	Unadaptability	Exposure
Snow Leopard	High reaches of Himalayan ranges. Narrow environment tolerance Food source –prey base affected due to change in vegetation & habitat	Very sensitive to temp. Hence poor dispersal ability	Temperature sensitive
Hoolock Gibbon	Highly endemic –Arunachal Pradesh. Mainly arboreal. Prefer dense and continuous evergreen forest	Due to fragmentation of habitat-barrier to its dispersion	-
Nilgiri Tahr	Confined to high altitudinal ranges of Kerala and Tamil Nadu. Prefers open grasslands.	Since confined to high altitude, it has low dispersal ability	Temperature sensitive

Afghanistan Working Group

Members: Mahtabudin Ahmadi, Rahila Kohistani, Aziz Gul Saqib (Presenter), Abdul Qadir Bahawi, Najibullah Nazary, Kuenzang Gyeltshen, Md. Monsoor Qazi, Wendy Foden (Facilitator)

Species	Sensitivity	Unadaptability	Exposure
Griffin Vulture	Deforestation & drought	-	War
Pelican (<i>Pelicanus Onocrotalus</i>)	Migratory bird	-	War has disrupted migration
Demoisselle Crane	Drought	-	Temperature sensitive

Bhutan Working Group

Members: Kuenzang Gyeltsheng (Presenter), Md. Monsoor Qazi, Mahtabudin Ahmadi, Rahila Kohistani, Aziz Gul Saqib, Abdul Qadir Bahawi, Najibullah Nazary, Wendy Foden (Facilitator)

Species	Sensitivity	Unadaptability	Exposure
Black-necked crane	Number is decreasing every year Migratory bird		
House sparrow	Human habitation, Dispersal ability, Physiological stress		Human intervention decreasing population
Griffin Vulture	Deforestation		Diclophenic acid excessive pesticide use. e.g. malaria control

Bangladesh Working group:

List of Susceptible Species of Wildlife due to Climate Change

Members: Abdur Razzaque, Shakif-Ul-Azam (Presenter), ABM Shahid Ullah, Annanda Mohon Dharm, Zillur Rahman, Ashim Kumar Das, BA Daniel (Facilitator)

Species Name	Sensitivity	Unadaptability	Exposure
Hoolock Gibbon (<i>Hoolock hoolock</i>)	Loss of Habitat-Deforestation Scarcity of Food Human Animal conflict- Deforestation not in proper manner Physiological stress	Maximum dispersal distance Dispersal barrier Low Reproductive out-put	Rise of Temperature Floods
Bengal Vulture (<i>Gyps bengalensis</i>)	Scarcity of Food-Due to hygenic measures carcass are not available Loss of Habitat Human Animal conflict	Low reproductive output More unknown cause Loss of breeding place	Heat stress
Gharial (<i>Gavialis gangeticus</i>)	Loss of Habitat Siltation of river Scarcity of Food Human Animal conflict-Due to over catching of fishes	Destruction of breeding places	Change in river flow Drought Flood
Marsh Crocodile (<i>Crocodylus palustris</i>)	Loss of Habitat Siltation of riveScarcity of Food	Destruction of breeding places Human Animal conflict.	Change in river flow Sea level rise Flood

Sri Lanka Working Group

Members: Dammika Malsinghe, Chamila Denagama, Prasad Soyza, Chandani Ganga Wijesinghe (Presenter), Sanjay Molur (Facilitator)

Species Name	Sensitivity	Unadaptability	Exposure
Giant Squirrel	Canopy – deciduous, evergreen and montane forests; Changes observed from disturbances;	Low maximum dispersal ability	Precipitation change unpredictable
Mouse deer	Deciduous, evergreen and montane forests; Invasive plants could change the food source;	Low maximum dispersal ability	Mild T increase; Precipitation change unpredictable
Asian Elephant	Deciduous, evergreen and montane forests; Invasive plant could change the food source	Barriers to dispersal; Long generations	Precipitation change unpredictable
Golden Palm Civet	Canopy – deciduous, evergreen and montane forests;	Low maximum dispersal ability	Mild T increase; Precipitation change unpredictable
Sloth Bear	Deciduous and evergreen forests;	Barriers to dispersal	Precipitation change unpredictable
Rusty spotted cat	Deciduous and evergreen forests		Precipitation change unpredictable
Leopard	Deciduous and evergreen forests;	Low maximum dispersal ability	Precipitation change unpredictable
Fishing Cat	Marsh lands; Narrow environment tolerance; Changes in food sources		Precipitation change unpredictable

Pakistan Working Group

Members: Md. Monsoor Qazi (Presenter), Mahtabudin Ahmadi, Rahila Kohistani, Aziz Gul Saqib, Abdul Qadir Bahawi, Najibullah Nazary, Kuenzang Gyeltshen, Wendy Foden (Facilitator)

Species	Sensitivity	Unadaptability	Exposure
Tortoise <i>Testudo horsfieldi</i>	Hibernating disruption (narrow hibernation period)	Gender disruption (temperature sensitive)	Physiological stress from heat threatened in Pakistan
Pelican (<i>Pelicanus Onocrotalus</i>)	Migratory bird – climate	-	Highly threatened
Black bear	Hibernates – disruption - highly threatened	-	Poaching concern (common)

Good examples in the collections to use for climate change education

Pakistan
Tortoise <i>Testudo horsfieldi</i> -popular with kids threatened in Pakistan -hibernating disruption (narrow hibernation period) -physiological stress from heat ,narrow tolerance range
Pelican (<i>Pelicanus Onocrotalus</i>) - Migratory bird, Temp migratory times - Highly endangered
Black bear <i>Ursus thibetanus</i> -hibernates -habitat destruction -poaching concern (common) -highly threatened



Indian Climate Change working group



Sri Lanka Climate Change working group



Bangladesh Climate Change working group



Afghanistan, Bhutan and Pakistan Climate Change working group