# DIVISION: RAINBOW COLLECTION

These brilliant beasties combine colors, sometimes across a spectrum only they can see, on their flamboyant forms. To paraphrase Kermit "why are there so many, species with rainbows, and what's what their vibrant hides"

#### Adaptation 1: Large Ears

• Like satellite dishes, the large rounded ears of African wild dogs swivel to detect minute sounds in the distance.

#### Adaptation 2: Smarts

• With an impressive 80 percent success rate, wild dogs are among Africa's most effective predators.

#### <u>Adaptation 3: Coloration</u>

• Mottled with red, black, brown, white, and yellow patches of fur, the effect is as striking as it is essential to survival.

#### Biome: Geographic Range & Habitat:

• These days, African wild dogs typically roam the open plains and sparse woodlands of sub-Saharan Africa. Their largest populations can be found in Botswana, Zimbabwe, Namibia, Zambia, Tanzania, and Mozambique.

#### Diet and Trophic Level:

• Packs hunt antelopes and will also tackle much larger prey, such as wildebeests, particularly if their quarry is ill or injured. The dogs supplement their diet with rodents and birds.

#### Size:

29.5 to 43 inches

#### Summary:

• The African wild dog is known by many names, including Cape hunting dog or painted dog. Its scientific name, *Lycaon pictus*, means "painted wolf," referring to the animal's irregular, mottled coat, which features patches of red, black, brown, white, and yellow fur. (National Geographic)

### Painted Wild Dog

(Lycaon pictus)



#### Adaptation 1:

• They can free soundlessly through the trees, away from danger.

#### Adaptation 2:

• Like to move high up in the canopy and are very agile

#### Adaptation 3:

• long arms and tails that can easily swing or leap between branches

#### Biome: Geographic Range & Habitat:

• Found in Southeast Asia. Live from lowland to mountainous terrain, semi-deciduous, primary and secondary rainforests, in the mid to upper levels of the canopy.

#### Diet and Trophic Level:

• Feed on small, young and tender leaves, fruit like figs, buds, petioles, flowers, bamboo shoots, and seeds.

#### Size:

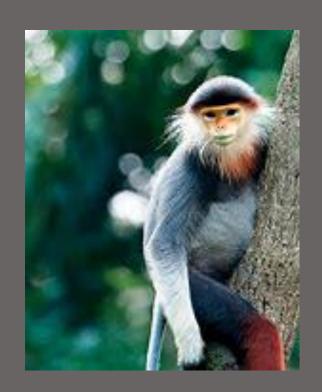
• About 53.5-61 cm tall and weigh 8-11 kg.

#### Summary:

A diurnal Old World monkey. The most colorful monkeys among all species of primates.

### Red-shanked Douc

(Pygathrix nemaeus)



#### Adaptation 1:

• Large cheek pouches that can store fruit and other foods during foraging

#### Adaptation 2:

• They use their long tails to aid in balancing while moving about in the trees, much as a tightrope walker may use a pole.

#### Adaptation 3:

• Wolf's guenons will bare their teeth in yawn-like grimaces, toss leaves, posture, and stamp on tree branches to demonstrate aggression.

#### Biome: Geographic Range & Habitat:

• Native to the central basin of the Democratic Republic of Congo (DRC) in west-central Africa. Their particular habitats within this region consist primarily of mature-growth forests.

#### Diet and Trophic Level:

• Primarily frugivorous (fruit-eating) and may supplement their diet with young leaves, flowers, seeds, nectar, insects, nestling birds, eggs, lizards, and frogs. Acts as a tertiary consumer.

#### Size:

• The Wolf's guenon ranges in length between 17.5-20 inches

#### Summary:

• Wolf's mona monkey (Cercopithecus wolfi), also called Wolf's guenon, is a colorful Old World monkey in the family Cercopithecidae. Most notably known for their cheek which can store food.

### Wolf's Mona Monkey

(Cercopithecus wolfi)



### Three Key Adaptations for Tournament: Adaptation 1:

• Marbled polecats have a mottled fur pattern that blends with their surroundings, providing camouflage against predators.

#### Adaptation 2:

• Being nocturnal allows marbled polecats to avoid daytime predators.

#### Adaptation 3:

• Marbled polecats use anal scent glands to mark territory and communicate with other individuals; territory defense.

#### Biome: Geographic Range & Habitat:

• Eurasia, grasslands & deserts

#### Diet and Trophic Level:

• Small mammals, fruit and vegetables; secondary consumer

#### Size:

• 29–35 cm

#### Summary:

The marbled polecat is a small mammal belonging to the gapus Vermela within the mustalid subfamily

### Marbled Polecat

(Vormela peregusna)



#### Adaptation 1:

• When a marbled polecat feels threatened it can they can release a foul-smelling liquid from their anal glands.

#### Adaptation 2:

• Like many mammals, polecats have teeth and claws they can use for defense and offense.

#### Adaptation 3:

• To make up for their weak eyesight polecats have very good senses of smell and hearing to detect things in their surroundings.

#### Biome: Geographic Range & Habitat:

• Marbled polecats are found from southeastern Europe to east and central Asia. They are primarily found in dry grassland and desert like environments.

#### Diet and Trophic Level:

• The marbled polecat is a carnivore and will eat almost any terrestrial animal smaller than itself. This includes small rodents, birds, lizards, and insects. The marbled polecat would be a tertiary consumer.

#### Size:

• Polecats weigh between 300 and 700 grams and reach lengths of 11-13 inches.

#### Summary:

Marbled polecats are small, terrestrial, and nocturnal mammals. They are most easily recognized by their yellow and reddish-brown spotted fur.

### Marbled Polecat

(Vormela peregusna)



#### Adaptation 1:

• A unique and colorful pattern that can blend in with tropical habitat

#### Adaptation 2:

• Large claws to climb and dig burrows to hide

#### Adaptation 3:

• Can produce 2 types of sound to fend off and scare away predators

#### Biome: Geographic Range & Habitat:

• Primarily found in coastal regions, mangrove forests and coastal marshes

#### Diet and Trophic Level:

- Herbivores that feed on fruits, vegetables, algae and plants
- Primary consumers

#### Size:

• Adults reach 2-2.5 inches long with a leg span of 4-4.5 span

#### Summary:

The Halloween crab is a colorful land crab known for its bright colors. It primarily lives in tropical habitats but returns to the ocean to mate.

### Halloween Crab

(Gecarcinus quadratus)



#### Adaptation 1:

• Their gills, as long as maintained moist allow the crab to live outside of the water.

#### Adaptation 2:

• Having their colorful pattern allows them to camouflage easily with their forest environment.

#### Adaptation 3:

• Their large claws allowing them the ability to burrow for protection and climb

#### Biome: Geographic Range & Habitat:

• Typically found in sand dunes, rainforest, and mangroves. Typically living in forest as adults but tend to return to the ocean for reproduction

#### Diet and Trophic Level:

• Primary consumers (Herbivores) which feed on fruits, vegetables

#### Size:

• Typically reaching a size of 2-3 inches with a life span of about 8-10 years

#### Summary:

This organism is nocturnal and require regular calcium intake to strengthen their exoskeletons. Known to figh each other these organisms require access to water in order to keep their gills moist.

### Halloween Crab

(Gecarcinus quadratus)



#### Adaptation 1:

• Keen and sensitive eyes capable of distinguishing circularly polarizing light (one of a kind), UV, and differing between many slightly different visible light colors

#### Adaptation 2:

• Fast moving back tail and feet allow for quick "evasive" maneuvers, also help to track down and tail prey

#### Adaptation 3:

• Spring loaded clubs in their arms have an equivalent acceleration to a .22 LR bullet (50 mph) and can deliver upwards of 1,500 Newtons of force

#### Biome: Geographic Range & Habitat:

• Coastal Indian and Pacific shallow areas

#### Diet and Trophic Level:

- Crabs, mussels, mollusks. They are secondary consumers Size:
- 2-7 inches is the typical length of adults

#### Summary:

The colorful, keen eyed and agile mantis shrimp can deliver strong blows to its opponents, living in tropical waters and being a fierce carnivore

### Peacock Mantis Shrimp

(Peacock Mantis Shrimp)



#### Adaptation 1:

• Sharp barbs on their limbs to impale and capture their prey

#### Adaptation 2:

• Smashers which use direct force of their mantis like front legs to strike the prey

#### Adaptation 3:

• Their compound eyes with 16 different types of cells in their eyes allowing them to see wavelengths that are beyond human perception

#### Biome: Geographic Range & Habitat:

• Warm, shallow waters located in coastal Indian and Pacific.

#### Diet and Trophic Level:

• Snails, oysters, crabs. Located in the secondary consumer on the trophic level

#### Size:

• Typically, adults tend to grow around 14-15 inch with a lifespan of about 3-6 years

#### Summary:

Unlike their cousin's mantis shrimp do not feed on tiny organisms but instead pray on other organisms. Mantis shrimp have evolved greatly from the regular cocktail shrimp and has gained many adaptations to not only strengthen it but also weaken the chances of it being captured and eaten.

# Peacock Mantis Shrimp

(Peacock Mantis Shrimp)



#### Adaptation 1:

• Having brown fur to blend into the surrounding environment and hide from predators.

#### Adaptation 2:

• Having large ears to pick up on low frequencies of prey.

#### Adaptation 3:

• Moving quadrupedally through the main canopy of the forest.

#### Biome: Geographic Range & Habitat:

• Found in Brazil. Live in the tall evergreen broadleaf tropical forests and semideciduous forests along the Atlantic coast

#### Diet and Trophic Level:

• Eat mostly sot, sweet fruits and eat flowers, nectar, insects and small invertebrates.

#### Size:

• Weigh about 17-24.7oz and measure 8-13 inches.

#### Summary:

Goldren-headed lion tamarins is a species that have relatively large canines with a small head and body and found only in Brazil.

### Golden-headed Lion Tamarin

 $(Leon to pithecus\ chrysomelas)$ 



#### Adaptation 1:

- Long Slender Fingers and sharp claws
- -Aid in gripping branches as it moves through trees.

#### Adaptation 2:

• It's diet primarily consists of fruits, insects, and small invertebrates so it can extract nutrients from it's surroundings.

#### Adaptation 3:

• Agile and acrobatic nature allow it to navigate dense canopy.

#### Biome: Geographic Range & Habitat:

• Found in southeastern Brazil, specifically in the coastal forests of the Brazilian states of Rio De Janeiro and Sao Paulo. It's habitat consists of tropical rainforests.

#### Diet and Trophic Level:

• They feed on fruits, like figs, berries, and other types of fruits. They also consume insects such as grasshoppers, crickets, and spiders.

#### Size:

• Small primate, typically weighing 400 to 600 grams, and range from 20 to 26 centimeters in length.

#### Summary:

Goldren-headed lion tamarins are native to Brazil's coastal forests and are small primates with golden fur. They thrive In the rainforest canopy, feeding on fruits and insects.

### Golden-headed Lion Tamarin

 $(Leon to pithecus\ chrysomelas)$ 



#### Adaptation 1:

• They have curled bills which they use for digging.

#### Adaptation 2:

• They have strong wings allowing them to travel through their mountainous habitat easily.

#### Adaptation 3:

• They travel in small groups or pairs.

#### Biome: Geographic Range & Habitat:

• They can be found in the Himalayas in India, Nepal, Tibet, and Bhutan. They prefer high-altitudes in temperate oakconifer forests.

#### Diet and Trophic Level:

They eat several types of insects and plants.

#### Size:

• They measure in length to about 70 centimeters. Males can weigh approximately 84 ounces, and females can weigh around 76 ounces.

#### Summary:

Himalayan Monals may be able to defeat opponents with their curled bills and strong wings. They also have an advantage since they travel in groups and like to be in high altitudes.

### Himalayan Monal

(Lophophorus impejanus)



#### Adaptation 1: Strong Wings

• They live on isolated islands and must fly long distances for food.

#### Adaptation 2: Strong Leggys

• As most pigeons, big fans of walking on the ground. The strong legs allow for easy walking as well as perching.

#### Adaptation 3: Very Fast Flier

• Can potentially fly up to 93 miles an hour.

#### Biome: Geographic Range & Habitat:

 Oceania, Southern tip of Vietnam and Cambodia, throughout Indonesia and occasionally Western Australia

#### Diet and Trophic Level:

• Seeds, nuts, and invertibrates. Secondary consumer. Size:

• 16in long, 23in wingspan, ~1.2lbs

#### Summary:

The largest pigeon in the world, the Nicobar Pigeon is also the closest living relative to the dodo bird. I think it should get some cool points for that. They can also fly for a very long time and potentially distract opponents with their beautiful plumage.

### Nicobar Pigeon

(Caloenas nicobarica)



#### Adaptation 1:

• Mottled Cup moths have the ability to inject liquid venom into predators.

#### Adaptation 2:

• They can excrete up to 151 individual toxins.

#### Adaptation 3:

• They have medicinal properties that can kill pathogenic bacteria.

#### Biome: Geographic Range & Habitat:

• Most found in the tropics of Queensland, New South Wales, Victoria, and Western Australia.

#### Diet and Trophic Level:

- Diet: Eucalyptus foliage
- Trophic level: Primary consumer

#### Size:

• 4 cm across body

#### Summary:

These moths have toxins and venom that can have a strong toll on an opponent's health, but may not be able to take them down.

### Mottled Cup Moth

(Doratifera vulnerans)



### Three Key Adaptations for Tournament: Adaptation 1: Camouflage

• The Mottled Cup Moth possess a mottled pattern that allows it to hide among its environment.

#### Adaptation 2: Venomous Spikes

• In its caterpillar stage, the Mottled Cup Moth possesses spikes that can inject venom into potential predators.

#### Adaptation 3: Hairy Body

• The Mottled Cup Moth has a very hairy body that allows it to sense changes as well as deters predators from eating it.

#### Biome: Geographic Range & Habitat: Woodlands

• Though the Mottled Cup Moth live in many places, it primarily resides in woodlands due to availability of resources.

#### Diet and Trophic Level: Primary Consumer

• The Mottled Cup Moth's diet consists of leaves and foliage. Size: 2-4 cm

#### • The Mottled Cup Moth is on average 2 to 4 centimeters

• The Mottled Cup Moth is on average 2 to 4 centimeters Summary:

Due to its helpful camouflage and physical defense mechanisms, the Mottled Cup Moth is able to survive and thrive in its habitat.

## Mottled Cup Moth

(Doratifera vulnerans)





#### Adaptation 1:

• Slimy skin with an appalling stench, coated with mucous - protects them from parasitic diseases and predators for their abominable taste

#### Adaptation 2:

• Eyes set outwards - gives them the special ability to hunt for their food underwater and to eat amidst dim light environments

#### Adaptation 3:

• Have a cryptic coloration that resembles the coral reefs they live in - helps them blend in and avoid detection

#### Biome: Geographic Range & Habitat:

- Inshore reefs
- shallow protected lagoons
- Found in the Coral Triangle of biodiversity including Indonesia, Malaysia, the Philippines and Australia, including the Great Barrier Reef.

#### Diet and Trophic Level:

- small worms, protozoans and crustaceans like munnid isopods, amphipods and copepods,
- other benthic organisms

#### Size:

- Small-sized fish.
- very little weight.
- 6 cm in length, but at times, up to 7 cm.

#### Summary:

The mandarin fish is a saltwater fish know for its colorful, vibrant body. The fish belongs to the Callionymidae family of dragonets and is also known as the mandarin goby, green mandarin, and mandarin dragonet.

### Mandarin Fish

 $\overline{\textit{(Synchiropus splen} didus)}$ 



#### Adaptation 1:

• Use bright hues of the skin to signal predators that they have an horrible taste and smell.

#### Adaptation 2:

• Eyes are set outwards which allows them to hunt for their food underwater and eat amidst dim light environments.

#### Adaptation 3:

• Has a slimy skin with stench and mucous to protect them from parasitic diseases and keep predators away for their abominable taste.

#### Biome: Geographic Range & Habitat:

- Are found in the Western Pacific to the Great Barrier Reef typically among corals or in a shallow protected lagoon or inshore reefs at 3-60 ft deep.
- Occurs in the Western Pacific from the Philippine ons and inshore reefs at depths of 3-60 feet (1-18 m).

#### Diet and Trophic Level:

• Secondary Consumers who mainly eat small crustaceans such as copepods and amphipods.

#### Size:

• About 3 inches in length

#### Summary:

Small secondary consumer that lives within corals or lagoons that feed on small crustaceans and survive by several adaptations such as slimy skin, bright hues, and outwards eyes used to hunt and turn predators away.

### Mandarin Fish

(Synchiropus splendidus)



#### Adaptation 1:

• These toads have poison glands.

#### Adaptation 2:

• They have rough and colorful patches to scare away the enemy.

#### Adaptation 3:

• They have great hiding strategies.

#### Biome: Geographic Range & Habitat:

• Habitat: Tropical moist lowland forests and rivers, endemic to Indonesia and Malaysia

#### Diet and Trophic Level:

- Diet: Beetles, worms, crickets, etc
- Trophic level: Secondary Consumer

#### Size:

• Around 2 inches, or 51 millimeters

#### Summary:

Although these animals have poison glands and hiding strategies, with their size I don't think they will be able to take down an enemy.

### Bornean Rainbow Toad

(Ansonia latidisca)



#### Adaptation 1:

• Its bright aposematic colors warn predators that it is toxic.

#### Adaptation 2:

• Since it feeds on Omphalea plants, it is toxic therefore insects can't eat them.

#### Adaptation 3:

• Their large wingspans allows for their wings to be seen easily.

#### Biome: Geographic Range & Habitat:

• Native to Madagascar. Migrates from the dry forest in the west to the eastern rainforest.

#### Diet and Trophic Level:

• As a caterpillar, it feeds on leaf tissue. As an adult moth, it feeds on the nectar of flowering plants. It is a primary consumer and is in the second tropic level.

#### Size:

• Adult moths have a wingspan of 7-9cm.

#### Summary:

This primary consumer is a toxic moth native to Madagascar. It has large colorful wings that notify predators of its toxicity.

### Madagascan Sunset Moth

(Chrysiridia rhipheus)



#### Adaptation 1:

• They use their bright aposematic colors to be confused with butterflies and warn predators that they are toxic.

#### Adaptation 2:

• They feed off of venous tissue of leaves and plants, causing them to be toxic.

#### Adaptation 3:

• They mate year-round but are most numerous from March to August. This is used to combat their rapid, explosive growth and decline.

#### Biome: Geographic Range & Habitat:

• They are believed to have come from China but are now endemic to Madagascar.

#### Diet and Trophic Level:

• They feed on leaf tissue when they are a caterpillar. Once they are a moth, they feed strictly on the species of the patropical genus Omphalea (Euphorbiaceae). They are a part of the second trophic level.

#### Size:

• They have a wingspan of 7-9 centimeters (2.8-3.5 in) and sometimes up to 11 centimeters (4.3 in).

#### Summary:

The Madagascan Sunset Moth is endemic to Madagascar. They are known for their bright aposematic colors that are used to display that they are toxic to predators. The diet strictly consists of Omphalea (Euphoribiaceae). Their wingspan generally ranges from 7-9 centimeters (2.8-3.5 in).

### Madagascan Sunset Moth

(Chrysiridia rhipheus)



#### Adaptation 1:

• Flattened bodies able to fit in small spaces and hide

#### Adaptation 2:

• Colorful coloration that can often match rocks in their environment, helping to camouflage

#### Adaptation 3:

• Long tails that help their balance on rocks and distract their predators

#### Biome: Geographic Range & Habitat:

• Endemic to South Africa. Often found in moist savannahs

#### Diet and Trophic Level:

• Ranges from crickets and flies to berries. They are often secondary consumers.

#### Size:

• Range for 5-13 inches in length, head to tail.

#### Summary:

The colorful species are endemic to South Africa and are able to hide virtually anywhere in its habitat due to its color and shape.

#### Flat Lizard

(Platysaurus broadleyi)



#### Adaptation 1:

• Flattened bodies from side-to-side help hide from predators in places such as under rocks, tree roots, and gaps in surfaces.

#### Adaptation 2:

• Toe pads that consist of tiny hair-like structures help grip on steep and smooth surfaces aiding in running away from predators.

#### Adaptation 3:

• Display warning signals to predators to scare them off. Often inflate their bodies, hiss, and display brightly colored throat patches. These signals indicate not easy prey.

#### Biome: Geographic Range & Habitat:

• Flat lizards are found particularly in South Africa. They live in rocky habitats as well as savanna biomes.

#### Diet and Trophic Level:

• Secondary consumers that feed on beetles, ants, grasshoppers, spiders, and berries.

#### Size:

• Vary depending on age, approximately 5 to 13 inches from head to tail.

#### Summary:

Flat lizards also known as "Platysaurus Broadleyi" are colorful flatbodied reptiles that are found in Southern Africa. They live in rocky habitats which allow them to hide from predators easily.

### Flat Lizard

(Platysaurus broadleyi)



#### Adaptation 1:

• Males have a large black horn that curves toward their thorax that is useful in the transport of excrement.

#### Adaptation 2:

• They use the sun, moon, and stars to travel in perfectly straight lines and locate their broad balls.

#### Adaptation 3:

• Greatly improves the soil quality of its habitats.

#### Biome: Geographic Range & Habitat:

- Eastern and Central United States and far Northern Mexico
  - Ex. (Florida, Wyoming and Arizona)

#### Diet and Trophic Level:

• Rainbow Scarabs are a type of dung beetle so when they are larvae and young adults they eat animals' excrement in their brood ball.

#### Size:

• 1cm - 2.2cm

#### Summary:

Rainbow Scarab Beetles are a north American species of dung beetle with colorful copper, red, green, and yellow coloration. In rare cases all blue coloration. They use and consume animal excrement in their broad balls to lay eggs. They can potentially live for over a year.

### Rainbow Scarab

(Phanaeus vindex)



#### Adaptation 1: Courtship Dance

• They display their brilliantly colored abdomen to attract mates.

#### **Adaptation 2: Jumping**

• As they are jumping spiders, they can use a sort of hydraulic system by altering the pressure of their own bodily fluids.

#### Adaptation 3: Great Vision

• Jumping spiders are visual hunters, so they have very well-developed vision.

#### Biome: Geographic Range & Habitat:

• Southern Queensland, Australia

#### Diet and Trophic Level:

• They eat small insects like ants as well as females eating males if they are unimpressed after courting.

#### Size:

• Males: 4 ½ mm

• Females: 5 3/10 mm

#### Summary:

They could dodge incoming attacks with their jumps and can see danger well with their eyes. They could also distract the opponent with their abdomen.

### Sparklemuffin Peacock Spider

(Maratus jactatus)





#### Three Key Adaptations for Tournament: <u>Adaptation 1: Bright Coloration</u>

• Their exoskeletons are brightly colored to warn predators of their poison despite not being poisonous.

#### Adaptation 2: Nymphs reside near bushes

• Nymphs of these grasshoppers reside in and around bushes during development to avoid predation and shield themselves from the elements.

#### Adaptation 3: Many offspring

• Rainbow grasshoppers produce an average of 100 offspring per generation, and the parents are present to protect the eggs for a few months of development.

#### Biome: Geographic Range & Habitat:

• Rainbow Grasshoppers are primarily found in grasslands and prairiee. They are found throughout the U.S. Great Plains and parts of southern Canada.

#### Diet and Trophic Level:

• Rainbow Grasshopper are herbivores, which means they are primary consumers. The nymphs only eat Wright's False Willow, while adults a wide variety of plants.

#### Size:

• Adult females are typically 1.4 inches in length, while adult males are typically 0.8 inches in length.

#### Summary:

A brightly colored species of grasshopper that primarily exist in the great plains of America.

### Rainbow Grasshopper

(Dactylotum bicolor)



