March 25, 2024

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ROUND 2 TAKE a BOW & RAINBOW COLLECTION



African Painted Dog (1) vs. Nicobar Pigeon (9)

- African Painted Dogs (*Lycaon pictus*) are especially good cooperative hunters, with several individuals chasing hoofed mammals larger than themselves that are intercepted by packmates, eventually bringing the exhausted animal down and killing through disembowelment.

Nicobar Pigeon (*Caloenas nicobarica*) prefers small islands with tropical forests. Nicobar Pigeon may nest on small offshore islands and travel to larger land masses to forage mostly on fallen fruit and seeds. Nicobar Pigeon's extensive terrestrial activities, and their nests built from twigs and leaves situated 0.5 to 20m above the ground in shrubs/trees make them vulnerable to invasive island predators like rats & cats or competition for fruit with introduced monkeys.

Tonight's battle takes place in the Moremi Game Reserve in the Okavango Delta, Botswana. A pack of African Painted Dogs are resting in the late afternoon. Our combatant African Painted Dog gets up in a "distinctive initiation posture: head lowered, mouth open, and ears folded back" to rally the group to stop resting & get active (Walker et al. 2017). Another African Wild Dog produces an intentional 'sneeze'- an "audible, abrupt exhalations of air through the nose" (Walker et al. 2017) Soon several more African Painted Dogs sneeze until... enough sneezes indicate a quorum has been reached and the pack is on the move!



MMMagic transports Nicobar Pigeon from their nesting colony on Pulau Jiew, North Maluku, Indonesia. The pigeon blinks in the bright sun against the semi-arid landscape. Combatant African Painted Dog, having successfully rallied pack mates, lopes out in the lead when he spots a bird flying toward the earth, and lopes on a convergent trajectory. Nicobar pigeon lands on a rocky area looking to drink from any small puddle of fresh water collected in rock depressions. Focused on searching for any drinkable water, the pigeon is not vigilant in one of the most predator intensive terrestrial ecosystems. A quick noisy clapping of wings, indicating disturbance, and a puff of feathers as African Painted Dog gets a quick bite to go. After all, chicken heads are the most effective bait for administering oral rabies vaccines to protect wild African Painted Dogs. PAINTED DOG DEFEATS PIGEON! Narrated by Katie Hinde.



Wolf's Mona Monkey/Guenon (3) vs. Peacock Mantis Shrimp (6) – When we last met the Wolf's Mona Monkey/Guenon (*Cercopithecus wolfi*), he was stuffing his cheek pouches full of FIGS. While figs are a favorite food of this frugivore, they've also been known to indulge in other plant materials like leaves, seeds, and flowers. In order to avoid predators, they forage for these plant-based diets in big mixed species groups with other primates! This might help them keep an eye out for any predators that might come by sky (eagles) or stalking through the forest (leopards).



Last we left Peacock Mantis Shrimp (*Odontodactylus scyllarus*), he defended his burrow from Mandarinfish. While Mandarinfish won't have a chance to face off against Shrimpy again, researchers have found that mantis shrimp recognize combatants they've fought before. In addition to their advanced visual system, mantis shrimp can detect odors from a distance thanks to some special hair-like sensory organs (aesthetascs) on their smaller antennae. In order to smell better they essentially whip the water near these organs into a frenzy.

Our combatants meet in the buffer zone just outside of Lomami National Park, one of the Democratic Republic of Congo's newest national parks. This region of the DRC is known for industrial-scale cobalt and copper mines, which are components

of the lithium-ion batteries that power modern technology ranging from smartphones to electric cars. Smaller scale, community-based artisanal mining operations, some of which are led by Congolese women like Annie Sinanduku Mwange, may help alleviate human rights abuses by improving working conditions, women's livelihoods, and reducing child labor.

Up in the forest canopy, we have a mixed group of mona monkeys (*C. wolfi*) and red-tailed monkeys (*C. ascanius*) foraging for their favorite respective treats. Like Frog and Toad, these monkeys like to hang together.

SMASH CUT: CoMMMbatant Peacock Mantis Shrimp is engaged in ritual combat! A good burrow is hard to find (high fin-terest rates) and a rival mantis shrimp just put in another offer. POW! POW! POW! Mantis Shrimp throws a series of rapid punches! Just as Mantis Shrimp goes in for another round, a MMMagic Portal opens to the Lomami River! Fresh water gushes through the portal into the coral reef! A rapid change in water salinity can be dangerous for crustaceans... mantis shrimp are healthy when water salinity is 32-36 p.p.t. and ~22°C. The MMMagic whirlpool causes ocean water to also flow back through the portal, creating a temporarily brackish fresh and salt-water mix as Mantis Shrimp is pulled closer to the whirlpool portal...

Mona Monkey sees the maelstrom in the river and clambers down to investigate at the water's edge, peering over the branch. Mantis Shimp's bent poised raptorial appendage juuuuust crosses into the Democratic Republic of Congo river waters...POW POW POW!

GUNFIRE IN THE FOREST!

In 2016, mona monkey and red-tailed monkey meat was 45% of the available game meat in one of the largest markets in Kindu, the closest urban area to Lomami River primate habitat. But the 2017 introduction of a voucher system for regulated hunting has reduced monkey meat at the market, as larger, more sustainable game is prioritized by hunters! THE POW POW POW was a hunter's harvest of an approved ungulate. But the noise scares the monkeys deeper into the forest and beyond the field of battle! MANTIS SHRIMP OUTLASTS MONA MONKEY! Narrated by Mauna Dasari and Katie Hinde.

Red-Shanked Douc (2) vs. Mottled Cup Moth Caterpillar (10) — While red-shanked doucs (*Pygathrix nemaeus*) most often walk and jump on all fours (quadrupedally) through their forest habitat, they also exhibit unusually high levels of arm-swinging (suspensory locomotion) for a monkey. This is especially common among juveniles. Courtship in red-shanked doucs is often initiated by females, and preceded by characteristic signals including a thrusted jaw, small head shakes, and raising and lowering of the eyebrows.



Mottled cup moth caterpillars (*Doratifera vulnerans*) typically feed on eucalyptus leaves and have been associated with extensive defoliation events in southeastern Australia. Though the larval stage of its life cycle lasts only about 2 weeks, it is the venomous spines of the mottled cup moth caterpillar that earned the species a Latin binomial meaning "bearer of gifts of wounds." #2024MMM

Our combatants meet in Son Tra Nature Reserve in Vietnam, where Red-Shanked Douc retains home habitat advantage. Red-shanked doucs are "selective feeders," meaning their "use of tree species [is] not based on relative density alone" (Lippold et al 2022). And it turns out they are particularly fond of.... FIGS!!! "There are at least 13 fig species in the Son Tra forest, and the doucs feed on them every month of the year" (Lippold et al 2022). Over 1/3 of total feeding time can be spent on figs, with "an increase in the number of fig species utilized in recent years" (Lippold et al 2022). Red-shanked doucs will even eat unripe fig as they still have nutritional value and waiting for fully ripe can mean a monkey misses out when others eat it first

Anyhoo...MMMagick once again transports MCM Caterpillar to the field of battle. Landing on a branch in Son Tra Forest, Caterpillar begins to search for some delicious eucalyptus. Meanwhile, having spent the afternoon gorging on figs, Red-Shanked Douc decides it's time to nutrient balance and eat some leaves. A specialized gut structure and microbiome help these monkeys process the foliage in their diet. Unable to find any eucalyptus, Caterpillar begins to crawl across leaves to select a twig location to build a cocoon, a process that takes many hours. Red-Shanked Douc plucks a clump of the young leaves he prefers and brings them to his mouth...MONKEY SHRIEK!!!



Caterpillar, hidden on the underside of one of the leaves Douc tried to eat, has STUNG DOUC'S LIPS with one of his venomous spines!! Douc immediately DROPS the leaf and it and the FLUTTER Leaf caterpillar DOWN. Caterpillar land safely in a clump of foliage on a lower branch as distress vocalizing Douc rubs his painful lip and scrambles to rejoin his family back in the fig tree. Douc has departed the field of battle! MOTTLED CUP MOTH CATERPILLAR VENOM SPINE STABS RED-SHANKED DOUC!!! Narrated by Lara Durgavich.

Flame Bowerbird (10) vs. Honey Bee (15) - Among birds, feathers aren't just rainbow, but pupils are too! During his courtship dance, the male Flame Bowerbird (*Sericulus ardens*) will "sashay like a bug-eyed matador, pulsing his pupils to seduce a mate." (Hasheer 2021). Male Bowerbirds are often 5+ years old before they become sexually mature with an elaborate bower and dance. The cognitive development to do these activities takes a lot of learning and practice. In the closely related Satin Bowerbird, young males learn through observation of older males how to build and decorate their courtship bowers. Young males build temporary, poorly constructed practice bowers where they 'court' other males.

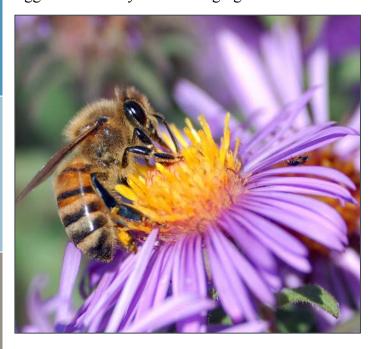


Honey Bees (*Apis mellifera adansonii*) occur all around the world and fulfill key pollination roles. They pollinate \$15 billion worth of crops in the U.S. each year, including 130+ types of fruits, nuts & vegetables. Although most bee species are slow to sting, allergic reactions to bee venom are a leading cause of animal trauma visits to the ER worldwide. Researchers are working on developing recombinant bee antivenom & other beesting preventative therapies.

Tonight's battle is in Lorentz National Park, Indonesia, a UNESCO World Heritage site, the largest conservation area in South East Asia, and home habitat of Flame Bowerbird. Our Flame Bowerbird combatant MMMagically returns to his bower and discovers the bower in ashambles with the breeding season a month away! Bowerbird males can demolish rival males' bowers and steal each other's collected items of flair! MMMagic also translocates Honey Bee from foraging activities in Gabon tropical rainforest to the Indonesian tropical rainforest. Honey Bee sees extraordinary blooms and buzz-swoops to taste the new nectars!

Flame Bowerbird hastily collects construction materials to repair his bower: twigs to structure his

avenue, but he needs purple berries and petals to line the stage of his bower! Honey Bee dives deep into the beautiful purple bloom of a Papua New Guinea Purple Orchid with many blossoms in a row! Flame Bowerbird also spots a Papua New Guinea Purple Orchid, its many blossoms will provide so many petals for his bower! Flame Bowerbird begins snipping petals right where the aggressive Honey Bee is foraging!



Honey Bee deploys her stinger in Flame Bowerbird's gape, the fleshy part where the upper & lower mandibles meet! Fire pain envelops Flame Bowerbird! Flame Bowerbird rears back! Honey Bee's sting apparatus and associated muscles, embedded in the Flame Bowerbird, rip from the rest of Honey Bee's abdomen! Screeching, Flame Bowerbird flies away from the field of battle, as Honey Bee lands back on the Purple Orchid. HONEY BEE STINGS FLAME BOWERBIRD! Narrated by Tara Chestnut and Katie Hinde.

Elephant Seal (1) vs. Virgina Opossum (8) - Northern Elephant Seals (*Mirounga angustirostris*) are the second largest members of Order Carnivora (just behind southern Elephant seals). Yet they start out nearly two orders of magnitude smaller as 33 kg pups. Within a matter of weeks, elephant seal pups will quadruple in weight, fed a steady diet of milk with 52% milkfat! In contrast, Opossum milk is 12% fat (and whole dairy milk from cows is about 3.2% fat).

Opossums (*Didelphis virginiana*) are prolific scavengers! Especially in urban and suburban environments, where they can comprise over 70% of total carcass visits, providing a valuable ecosystem service by removing carrion. Opossums scavenge in predictable ways. A field that looks at

how organisms decay and are preserved, called taphonomic studies, shows Opossums break into bodies to preferentially eat organs. This leads to distinctive bite marks and breaks on bones.

This battle takes place along the sandy shores of Guadalupe Island. Here the large bull Elephant Seal is briefly resting, while keeping an eye out for late-season mates or rivals. Nearing the end of mating season, many of the female elephant seals have left, leaving the beach mostly occupied by pups. They will remain here for a few weeks before venturing into the sea. Many of these seal pups are dead. The first few weeks are a dangerous time for pups, and the leading cause of death is trauma, mostly from being crushed by the massive bulls as they galumph across the sand confronting



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challenger males. These seal pup carcasses are aflutter with activity though, as many gulls feast upon this seasonal abundance of carrion. Occasionally a gull will peck at some smaller, un-crushed pups, only to be rudely roared at and scared off.

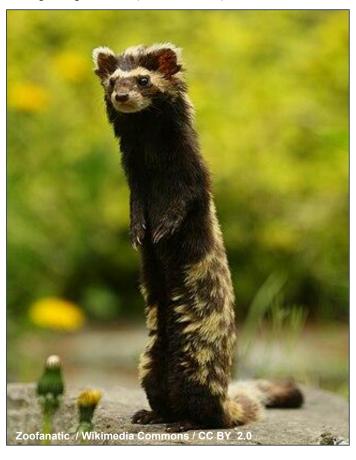


Transported from its forest to the beach, Opossum is unsettled by the clatter of gull and seal vocalizations. However, Opossum smells the enticing aroma of decaying tissues and tries to cautiously make its way to a delicious meal. Opossum creeps along, when suddenly, a very well-fed seal pup rolls over and thwacks the Opossum! Already stressed out, the contact triggers Opossum to do what it does best – play dead. Defecating itself and going still, not far from the resting bull Elephant seal!

Scanning the beach for an easy meal, a gull spies a small furry mound unmoving in the sand. Landing at the Opossum, the gull sharply jabs its body to test if it is living. The fully catatonic Opossum does not move, even if cut and bleeding. Convinced Opossum is dead by the lack of movement and feces, the gull gives several powerful sharp jabs at the head, tearing out the

Opossum's open eyes. Gulls often pierce the fontanels and eyes of weakened newborn seal pups if mothers are not vigilant. While gulls prefer to scavenge dead things, the catatonic Opossum just seems especially fresh meat. The gulls gather as fake dead Opossum becomes real dead Opossum. Northern Elephant Seal Defeats Opossum! Narrated by Brian Tanis.

Marbled Polecat (4) vs. Halloween Crab (5) – Marbled polecats (*Vormela peregusna*) live in underground dens. Although they can dig their own, they will also live in gerbil or jird systems, lining their sleeping chamber with grass in winter as cozy insulation. As a mesopredator, Marbled Polecats are vulnerable to predation by larger predators, including eagle owls, red foxes, golden jackals, stone martens, wildcats, and even European polecats (et tu, Brute?).



Like all crabs, Halloween crabs (*Gecarcinus quadratus*) can make a "bubbling sound" by forcing liquid out and over their mouthparts - similar to how we blow bubbles! Halloween crabs are vulnerable to mammalian predators such as raccoons and coati, the Procyonidae, sister branch to mustelids in the supra-Order Musteloidea. Several months ago a NEW predator of Halloween crab was reported... a species of giant semiaquatic wandering spiders, a sit and wait hunter, (*Ancylometes bogotensis*) that perched on a palm consuming the captured crab!



Once again Polecat is found hunting in the Gurbantünggüt Desert, northern China! MMMagic translocates the nocturnal Crab to a dune in the desert! Deprived of the forest and leaf litter habitat the Crab is adapted to, the crab is on high vigilant alert and begins to scurry to find cover. Although the Polecat is a specialized predator of rodents and birds, it is NOT a picky eater, and opportunistically eats lizards, snails, and beetles. The black-orange-red animal skittering around is instantly worth investigation!

Polecat blitz rushes Crab, but realizes its prey is missing a thorax!!! Polecat's go-to method for attacking small prey is a bite to the chest... Polecat

pauses to assess! thR-thR-thR-thR!!! Disturbed by the predator's approach, Halloween Crab rubs his claw's forearm against his tubercle-covered carapace to produce noise "similar to that produced by rapidly running an object over the teeth of a stiff comb" (Abele et al., 1973). Unintimidated by the small Crab's thR-thR-thR-thR, Polecat FLIPS Halloween Crab with versatile front paws! AAH! Halloween Crab UPSIDE DOWN starts WRIGGLING WILDLY to right itself!

SEIZING ITS MOMENT, Polecat CHOMPS on a crab leg just centimeters from a dangerous claw...A slashing crab leg pierces the Polecat's FACE! In reactive pain, Polecat whips his neck and head -- FLINGING Halloween Crab! Well, *MOST* of Halloween Crab, one crab leg remains gripped in Polecat's teeth, as a single blood drop runs down Polecat's cheek. Crab scurries away to find a safe place to regenerate its missing leg. Crabs will even self-amputate (automotize) an injured or infected leg to regenerate healthy #CrabsAreSoMetal replacement. **POLECAT** DEFEATS HALLOWEEN CRAB! Narrated by Gretchen Andreasen.





Leatherback Sea Turtle (4) vs. Pronghorn (5)-

In the nests of Leatherback Sea Turtles (*Dermochelys coriacea*), after 51 days of incubation, baby turtles inside their eggs begin "singing" to their nestmates. As hatchlings, the turtles continue singing, but have fewer types of sounds. Emerging from eggs at the same time as a clutch allows sea turtle hatchlings to together dig out of the sand & rush through a gauntlet of predators. Singing to coordinate the synchronous emergence lowers per hatchling digging effort & predation risk.

Pronghorn (*Antilocapra americana*) are the second fastest living mammal... ON LAND! Pronghorn traits for speed were primarily shaped by selection pressures from now extinct cheetahs (& possibly short-faced running bears) that once roamed what is today called North America. Adult pronghorn, with top speed ~100km/hr, more readily escape predation, but newborn fawns remain vulnerable, especially to coyotes. BUT bringing back wolves to ecosystems reduces coyote predation of fawns, helping to recover pronghorn populations.

Tonight, having laid her eggs, Leatherback has returned to the coastal waters for an inter-nesting swim to a new nesting site, heading North from Cape Canaveral, Florida. Meanwhile, in Wyoming... an approaching spring snowstorm has male Pronghorn leading his herd toward some cover. This is the season in which weather switches frequently

from snow to rain, freezing to melting and back again. Pronghorn's Round 1 barbed-wire wound is festering and oozing. CRACK-CRACK CRACK! Pronghorn plummets through snow-covered thin ice into a water-filled natural rock tank! Panicking, Pronghorn tries to pull himself out, but the slippery, nearly vertical sides keep him trapped!



Leatherback Sea Turtle rises toward the ocean surface, exhales her held breath while still submerged (anticipatory exhalation), about to break the surface... When #MMMagic translocates Pronghorn onto Sea Turtle's leathery BACK, pushing her down deeper in the water! Pronghorn prancy-dancy stabilizes on Leatherback Sea Turtle, looking in surprise at his coastal Atlantic Ocean

location! Leatherback Sea Turtle ROLL-DIVES so Pronghorn plummets into the ocean! Leatherback Sea Turtle surfaces for a needed breath of air! #2024MMM Pronghorn begins swimming, as pronghorn do when needs must, headed toward the Florida coast on the horizon. Pronghorn's blood is in the water... A large fin slices the surface of the water.

GREAT WHITE SHARK IS ON THE SCENE!

Leatherback sea turtles navigate inter-nesting waters prowled by bull sharks, tiger sharks, & #3-seed Great White Shark (Carcharodon carcharias). AND in recent days the great white sharks are indeed showing up in Florida!



CHOP CHOP!!!! #11-seed Swamp Nightjar (*Caprimulgus natalensis*) is flying above, disoriented from #MMMagic Translocation... Swamp Nightjar chicks are "highly mobile within hours of hatching and respond immediately by running to the parent birds."

Swamp Nightjar heads toward the Florida coast on the horizon, flying parallel with the water, a few feet above the ocean surface. Great White Shark breaches upward 11.5 feet, (380cm, 15 stoats high) at the flying Swamp Nightjar (as it has been observed doing toward seabirds).



Great White Shark FAILS to make mortal contact with the Swamp Nightjar, who flys as quickly as possible from the field of battle. Deprived of an avian amuse bouche, Great White Shark's multisensory prey detection system that integrates smells, movement, & electrical signal compel the shark to investigate nearby goings on...

Pronghorn & Leatherback Sea Turtle are each swimming toward shore. Pronghorn to return to preferred terrestrial lifestyle, Leatherback Sea Turtle to lay another clutch of eggs. Their movements are detected by the shark. Pronghorn's swimming hooves churn below the water, kicking at Leatherback Sea Turtle! Surfacing again, Leatherback Sea Turtle uses her body mass to swim-shove Pronghorn...

INTO THE EXPLORATORY BITE OF THE GREAT WHITE SHARK! Having encountered a pronghorn... Great White Shark performs "an exploratory bite to better understand the unfamiliar object" so their "gustation" senses can determine if food. BUT even an exploratory bite from a Great White Shark can catastrophically sever arteries... & Pronghorn bleeds out on the field LEATHERBACK **OUTLASTS** battle! PRONGHORN! GREAT WHITE SHARK **OUTLASTS SWAMP NIGHTJAR!** Narration by Prof. Katie Hinde

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African Painted Dog vs. Nicobar Pigeon

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Mona Monkey vs Mantis Shrimp cont.

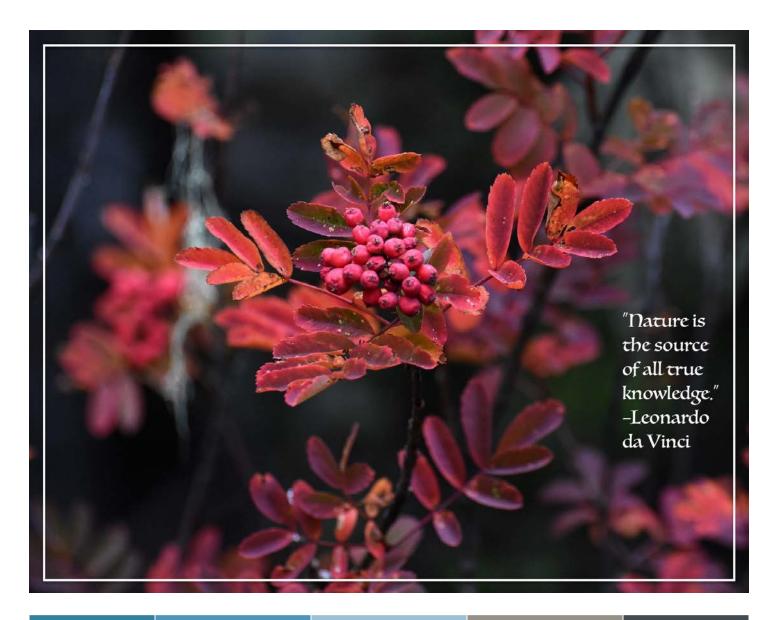
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READ ALL ABOUT IT by Katie Hinde, Margaret Janz, Melanie Beasley, Anali Perry, & William Yates

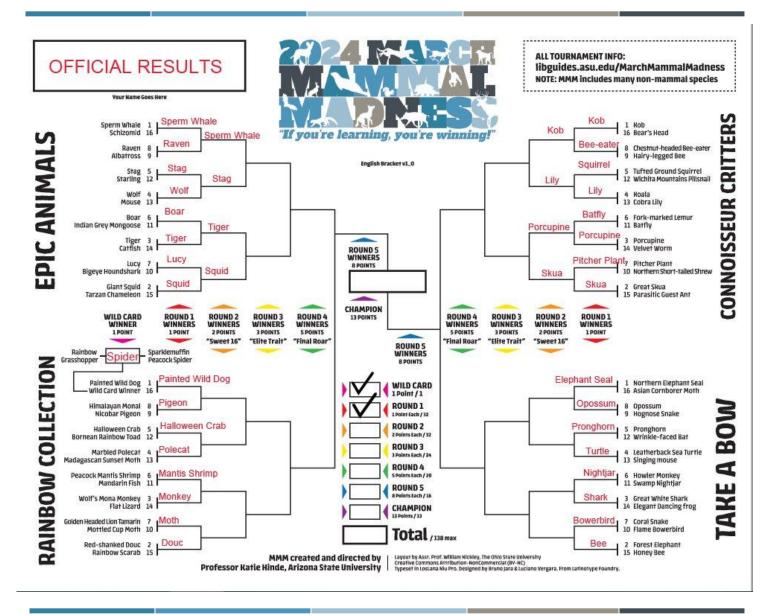


COMBATANT ARTWORK



Valeria Pellicer @VPellicerArt ko-fi.com/veppart <u>Website</u> Olivia Pellicer @Opellisms ko-fi.com/opellisms Website Mary Casillas Freisner @MaryCCasillas ko-fi.com/marycasillas Website Charon Henning @TheOddAngel ko-fi.com/oddangel Website

CURRENT BRACKET





WOOOOHOOOO! March Mammal Madness <u>was covered in USA Today by Jonathan Limehouse</u>! Check out this sweet quote "The MMM team is dedicated to removing barriers that historically leave behind huge groups of learners, and not just cost. MMM is free for anyone to play, but importantly, all the educational materials are also available as open educational resources," said Anali Maughan Perry, head of Open Science and Scholarly Communication at ASU Library.

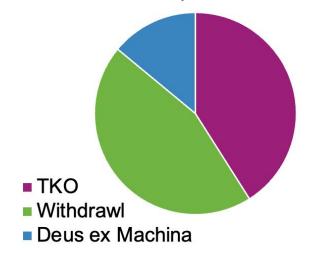
Now I almost feel bad for what Great Skua did to Northern Gannet.

2024 MMM by the Numbers

From an initial field of 65 combatants, through the Wild Card, Round 1 and Round 2 we have traveled around the world and through time as 49 species were eliminated from the tournament. Over these battles, scientist-narrators have cited N>330 publications from the scholarly literature. From these publications are natural history descriptions of animal, plant, & fungi- their physical traits and ecosystem roles. From Nature papers, to magnum opus books, to doctoral dissertation, these resources are invaluable records of science, nature, and knowledge.

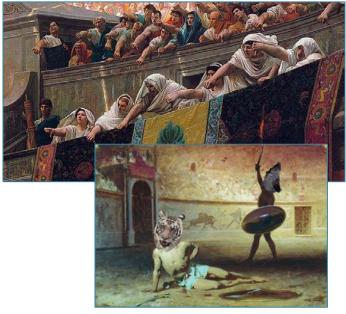
As promised in the Wild Card Read All About It, combatants arrive to an encounter with their physical AND behavioral traits. These traits include adaptations to only gradually escalate confrontations, intimidate opponents, and quickly exit stage left for safer surrounds. As a result, just as in nature, withdrawal from the encounter is the most common "battle" outcome (N=22/49, 45%). Outcomes of Total Knock Out (TKO) are a close second (N=20, 41%).

2024 Tournament "Battle" Outcomes: WC, R1 & R2



And although feedback from the coMMMunity suggest an overall impression of "too much running away!" and "where's the carnage?!" such responses are demonstrably unevidenced. Although no injuries to either opponent are most common among all possibilities, some amount of "carnage" occurs in the majority of "battles."





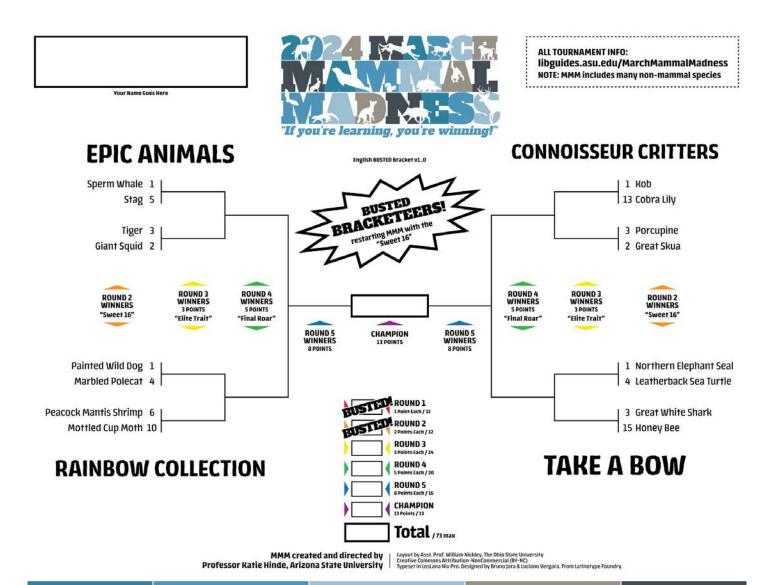
Encounters involving a combatant fatality or injury were routine; mutual injury/fatality or carnage for a 3rd party are less common. Importantly though, demand all you want, MMM does not mimic a video game or showcase uninformative violence.

BUSTED BRACKETEERS!

Sometimes our pick for Champion meets an unfortunate early exit from the tournament. Upsets happen, and they are called upsets not because people respond to them with cordial equanimity. BUT in 2024, in collaboration with MMM graphic design guru, Prof. Will Nickley, we present the **Busted Bracketeers Bracket!** While you can't update any digital submission, you CAN pick a new champion to cheer & keep following the MMM action through to the end! Rally your fellow friends with busted brackets to form your own local club! **Educators, consider having a prize for**



the best score or best sustained engagement of the Busted Bracketeers!





Amy McEuen, PhD W > @mceuen_amy · 48s Omg!! yes!! #TeamInvert #2024MMM

Dr. Lara Durgavich @tinkeringprim8 ∙ 1m

Replying to @tinkeringprim8

MOTTLED CUP MOTH CATERPILLAR VENOM STABS RED-SHANKED

DOUC!!!! #2024MMM

#2024MMM RND 2 TAB & COLLECT.

EMOJI BATTLE



Human Person @radiationmouth · 49m
I AM OVERSTIMULATED SEND HELP #2024MMM



A Girl is Tired @FSUSarah42 · 50m
Tonight's @MMMletsgo battles were brutal.



7:12 PM · Mar 25, 2024 · 203 Views



🔽 Orion 🌈 &sm9eb 듣 🏺 @sm9eb · 1h

Noooo, no thwacking! Hiss, #TeamOpossum, hiss!! #2024MMM

2024 March Mammal Madness

High State of the Control of the Contro