



T Rex



TYRANNOSAURUS REX: PREDATOR, SCAVENGER OR NEITHER?

Among all paleontological questions, one of the few to excite the public mind is whether or not T. Rex was a predator or scavenger. Was it the king of the predators, sitting by itself at the top of the food chain, or was it little more than a lumbering, over-sized vulture feeding on carrion? Expert opinion on both sides of this question has gained the support of other experts, and rightly so because both sides have strong and logical arguments to support their seemingly contradictory conclusions. This essay will attempt to (a) answer this question and (b) in doing so, argues that strictly speaking T. Rex was neither predator nor scavenger, but instead had its own unique ecological niche.

Argument for the Predator

Among all terrestrial creatures T. Rex seems to inspire an aura of sheer formidability without compare. Its mass rivaled that of an elephant, its jaws were huge and lined with teeth that were both strong and peg-like, yet sharply edged and pointed too. The muscles operating these formidable jaws were exceptionally massive, filling much of T. Rex' head and giving it unmatched biting power. Moreover its teeth were configured like a cookie-cutter, so when it bit into bone and flesh it did not simply cut deeply into tissue, it tore out huge gobbets as well. Imagine the jaws of a steam-shovel with thick, pointed teeth with razor edges! T. Rex also had the large, forward looking eyes of a predator, and an extremely well-developed sense of smell like a wolf or bear. Like most predators (and unlike most scavengers) it was smarter than the herbivores that surrounded it, judging from the size of its brain compared with that of its Ceratopsian, Ankylosaur and Hadrosaur contemporaries. Some paleontologists argue it was even a fast runner that may have hunted in packs! If they are correct, then T. Rex must have been not just a predator but an inconceivably awesome and frightful one.

And never forget, the name its discoverers were impelled to give it -- Tyrannosaurus Rex, which means "King Tyrant Lizard" -- has seemed unquestionably appropriate to most, especially once one has personally seen its fully mounted skeleton. Even though the T. Rex is improperly mounted in most museums, it still exudes an unmistakable aura of awesome menace.

Argument for the Scavenger

Eminent paleontologist Jack Horner has advanced the argument that T. Rex was a scavenger, not a predator. His calculations and biomechanical arguments suggest that T. Rex could not have run fast enough, nor been agile enough at its maximum (albeit slow) speed, to have been able to actually catch anything living. The "scavenger camp" also points out, correctly, that an acute sense of smell may well buttress their point of view: few birds (who are almost certainly the direct descendents of dinosaurs) have a well-developed sense of smell, but a major exception is the turkey vulture, a pure scavenger. An acute sense of smell is critical to enable the turkey vulture to find carrion in thickly forested environments, and a slow, lumbering T. Rex would have benefited from its unusually acute sense of smell in the same way.

And then, there are those ludicrously short and silly arms. They are so small, on such a fierce and massive creature, as to seem like grisly parody, akin perhaps to Hitler on a tricycle. Allosaurus, Megalosaurus, Velociraptor, Utahraptor, Spinosaurus, etc. --

basically all the other dinosaur predators -- had proportionately appropriate forelimbs, armed with large claws. This armament was clearly part of the overall dinosaurian predatory package. It's thought that all these other predatory dinosaurs used their formidable forelimbs to hold their prey, while they bit into it like Allosaurus or eviscerated it with kicks like Velociraptor. In contrast, the forelimbs of Tyrannosaurus were inadequate to pick its nose, let alone hold down a Hadrosaur or subdue a spiky struggling Styracosaurus. The scavenger theory argues that T. Rex's vestigial-looking arms were precisely that (i.e. vestigial, like our appendix) and they got so small and silly because they were unneeded by a scavenger.

Jimmy McBratney and the Mafia

James McBratney was a leader of a gang of Irish toughs in New York during the early 1970's. This gang came to develop an unusual (and short-lived) criminal specialty. They would kidnap members of the Mafia for ransom. This had the advantage of no law enforcement involvement. It had the disadvantage of eventually being fatal, when McBratney kidnapped Manny Gambino (Carlo's nephew) for ransom, but somehow the nephew wound up dead. McBratney was extremely fortunate to have been killed by accident in a bar fight with guns, when a young Gambino soldier named John Gotti, eager to make his bones, attempted to gain custody of him via impersonating the police; McBratney smelled a rat and was killed in the scuffle. The mind boggles at what reward the Gambinos may have been planning for McBratney, had "Johnny boy" (Gotti's mafia nickname) succeeded in capturing him alive.

The connection with T. Rex is that McBratney and his gang filled a unique niche, albeit quite temporarily and unsuccessfully in their case. They attempted to specialize in the role of hyper-predator, where they preyed on the predator and not on the public directly.

The Great Short Faced Bear

Arctodus, the scientific name for the great Short Faced Bear, was a far more successful practitioner of the peculiar niche that James McBratney briefly experimented with. It was a perfectly awesome creature, as tall at the shoulder as a horse, with long legs and weighing in at roughly up to a ton. It was a contemporary of the saber-tooth tiger, cave lion and dire wolf, all immensely formidable predators themselves. But Arctodus was perhaps up to twice as large as the largest of these, and was simply formidable beyond belief. Imagine a Kodiak bear with long legs on steroids. (Indeed, some scientists have opined that large Short Faced Bears approached twelve feet tall at the shoulder even on all fours, with a weight exceeding 2,500 lbs!).

But there's a problem. Arctodus had long legs and is thought to have been able to lope fast and far, but its bones were insufficiently massive to withstand the extreme torque that a creature of its huge size and weight would experience in chasing and subduing prey. Male lions are well known to be too slow to catch prey for themselves, and it's thought that the Short Faced Bear had a similar or worse problem. Its legs were not short and stubby like a grizzly's, were not engineered to withstand massive torque. In the process of trying to catch fast and athletic prey, in other words, scientists have determined that in twisting and turning at maximum speeds the Short Faced Bear would most likely have broken its bones.

The mystery deepens upon further examination of the Short Faced Bear's bones. Arctodus only went extinct during the last 10,000 or 20,000 years or so, and therefore we can examine its bones closely enough to ascertain what it consumed. Unlike most predators, Arctodus did not specialize in any particular prey. With most predators from this time, a study of the chemical composition of their bones reveals that most of their diet derived from a particular few prey species. They tended to specialize, in other words, both as species and as individuals. The short faced bear did not specialize, indeed just the reverse: its bones contain evidence of a widely catholic meat-eater's diet including bison, camel, horse, ground sloth, pronghorn and others. And, meat is pretty much all it ate, in stark contrast to all bears today except the polar bear, which lives where there's little vegetation. How in the world could a single predator have been able to subdue all manner of prey, from giant bison to fleet, swift pronghorns, when its bones could likely not support the level of stress required by either!? Yet, we know Arctodus consumed these and most all other contemporary herbivores with little apparent restriction.

The Hedge Fund Predator

The answer is that it didn't catch this diverse prey itself. That would be impossible, since it would require mutually exclusive characteristics. A predator strong and large enough to catch, overpower and kill a giant bison by itself could hardly possess the speed and agility needed to similarly catch and subdue pronghorn antelope. So, how did Arctodus feed itself?

Answer: with leverage, like a hedge fund manager. A hedge fund manager increases its return with leverage, borrowing money to invest to earn a higher return than the interest on the loan. The hedge fund manager, in other words, uses "other peoples' money" to boost returns it would otherwise be unable to achieve on its own.

The Short Faced Bear was similar in that it fed itself with other predators' kills. Scientists have determined that instead of preying on herbivores directly, as most carnivores do, Arctodus was a rare hyper-predator, a successful version of the James McBratney specialty of extorting the extortionists or preying on the predators. In other word, the Short Faced Bear is thought to have let all the other predators do its hunting for it, using its unique combination of exceptionally acute sense of smell, long loping legs and enormous size and strength to swiftly detect when another predator made a kill, quickly reaching that kill and driving the rightful owner off. Even the saber tooth tiger, the cave lion (which may have approached 1,000 lbs) or a pack of dire wolves would have been wholly incapable of taking on a Short Faced Bear which was up to four times the size of a grizzly.

T. Rex -- Hyper-Predator

I propose that T. Rex filled this same peculiar niche. It too had the acute sense of smell to locate other predators' kills, and even if it could not run fast enough to catch a swift hadrosaur or lacked the agility to tackle a triceratops herd itself, it would have required neither ability to locate and reach other dinosaurs' kills. And it would not have needed meaningful forelimbs to drive the rightful owners from their kill, those massive jaws lined with uniquely formidable teeth would have been more than sufficient. Indeed, this role seems to fit T. Rex perfectly, since it plays well to T. Rex's strengths which the "predator

camp" cites, and avoids or renders moot the structural weaknesses which the "scavenger camp" raises.

In essence, like *Arctodus* it probably specialized as the king bully-boy, taking over whatever kill it wanted. This rather unique ecological niche would explain *T. Rex*' unusual characteristics.

For example, the overwhelming firepower represented by its uniquely formidable jaws and teeth is fully explained, for no competing predator with more conventional dentition and musculature could stand against *T. Rex* even if like *Spinosaurus* it was roughly the same size. *Spinosaurus*, like virtually all other large *carnosaurs*, had long forelimbs with claws, and its jaws were sort of like a crocodile's. It was surely formidable, but no match for the bladed steam-shovel that was unique to *T. Rex*.

Likewise, *Velociraptor* was fast and agile, and is often depicted hunting in packs to take down a *Hadrosaur* or other herbivore many times its size, more or less like a pack of wolves will subdue a moose or like the red Dhole of India, (a pack of which can even tree tigers) will take down a sambar. *T. Rex* could not hope to match the speed of *Velociraptor*, but its comparative slowness would only have slightly delayed the time it took *T. Rex* to reach their kill, and would not have impeded its ability to drive them off. While a male lion cannot typically catch prey itself, it can (and regularly does) co-opt the prey of Spotted Hyenas. *T. Rex* was probably comparable, except it carried this concept of hyper-predatory leverage further, inasmuch as unlike male lions it lacked a pride of helpful mates of the same species to do the direct predation for it.

Lions and Feminists

Speaking of lions, as an interesting aside, feminists cite the lion as an example of males taking advantage of females since the females do all the hunting but the males eat first.

But in areas like the Ngorongoro crater possibly as much as 70% of lions' food intake derives from hyena kills co-opted by males, and throughout all of Africa male lions protect their lionesses from Spotted Hyenas who otherwise gang up on the females and kill them (and their cubs, too) with apparent gusto. The males, bred by nature to mainly fight other males, can and do defeat any number of hyenas with relative ease whereas the lionesses cannot, and unless defended by a male are often overwhelmed and killed. Too bad for the lionesses with no male protector, and too bad for that particular favorite feminist example.

Aggressive feminists should however take comfort in the fact that the female *T. Rex* was rather larger than the males and probably contributed meaningfully to male *T. Rex* premature mortality.

Lions of both sexes are, incidentally, perfectly horrible parents; the cubs have roughly a 50% mortality rate, one of the highest among all mammalian predators by a large margin. With wild dogs it's closer to 6% or 7% for example. So, if Dreyfuss Funds really did guard your portfolio as advertised like a "lion guards its cubs" an investor would be bereft.

But that's only if viewed from our eyes.

From the Lion King's eyes

Because they are too big and strong to be fast, male Lions depend on their lionesses for their very lives. Otherwise they starve. So when the males battle each other, it's for their very lives. But even more powerfully, note well that if the King is defeated the new King will kill each and every cub. They want the lionesses to be ready to birth their cubs. So the male lions fight like utter utter bloody hell. Their distinctive mane is hairy armor protecting their vulnerable throats and neck. Tigers are bigger but the author will always bet on the King Lion for he has both armor mane and those fiercely fierce King Lion Balls. Tiger males live alone perfectly fine, but I know who would win.

This is why the hyenas, even when led by their dominant Alpha females, have no chance against him whatsoever no matter how many gang up on him when they try to kill the lionesses and all their cubs too. They simply have no chance regardless of number.

(Maybe the good folks at Dreyfuss will not come after the author after all, for in truth it's hard to imagine anything fighting harder for its cubs than a lion, when one sees it from their eyes).

The losing lion's mane turns mangy and limp since he has no need for it anymore. There's a lot less testosterone flowing through his heart and his blood since his lion king balls become diminished. And he dies soon, usually.

Minor Lion Epiphany

Egad! It suddenly occurs to me that perhaps the female hyenas so eagerly kill the lionesses because the lionesses not only willingly and happily do the hunting work for their husbands, but let those lousy lazy males eat first to boot. This requires further contemplation, but at a later date.

Getting back to T. Rex

But, I digress. Like the Short Faced Bear, T. Rex had an exceptionally acute sense of smell, perfect equipment for detecting at long range other predators' kills. Furthermore, the comical forelimbs of T. Rex may well have been vestigial -- at least, they would have been unnecessary for a hyper-predator since Tyrannosaurus did not need to hold anything down to kill it, rather it only needed to intimidate the rightful owners of the kill enough to drive them off. Forelimbs would scarcely have been noticed once those incredible jaws began to approach!

So, in summary the rare hyper-predator role seems to fit T Rex like a glove. It certainly explains its overwhelming sheer formidability compared with all predatory contemporaries. It may or may not have been fleet and agile, but in this hyper-predator role would have needed these attributes no more than it would have needed normal size forelimbs.

Long Live the King

The hyper-predator role is, finally, an attractive theory for T. Rex since it restores and reinforces the unique grandeur and violent magnificence that T. Rex simply seems to exude, and which has rightly captured the imagination of man since its first discovery.

To think of this most fearsome-seeming of all terrestrial predators throughout the ages as being little more than a lumbering oversized vulture is highly distasteful, and for some is emotionally akin to a kick in the groin. The hyper-predator niche enables the all-time King of Beasts to proudly reclaim its rightful crown, and preserves its loyalists from symbolic testicular distress.

Damocles
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