

Powerful Bird Beaks

Do you know the power of a bird's beak?

By Rebecca Sweat

Birds with bigger beaks, like this Alexandrine parakeet, have a stronger bite than birds with smaller beaks. Courtesy Angela Halopulos, Michigan

Something all bird owners surely know is that parrot beaks are powerful. But how powerful? There are few reliable sources on this, but some people have estimated that a large macaw has the bite strength of 500 to 700 pounds per square inch, which is close to that of a large dog bite. Just watching a large macaw or cockatoo crush a Brazil nut, rip a 2-by-4 into shreds or break a weld on metal cage bars convinces most observers that a bird's beak is powerful and not to be messed with.

Of course, the smaller the beak, the lighter the bite. "It is the beak size — not the bird size — that counts," said Gayle Soucek, a pet trade consultant in Illinois and author of *Doves: A Complete Pet Owner's Manual* (Barron's, February 2006). For example, a cockatiel might weigh nearly the same as a Senegal, but the Senegal has a much larger beak and a much stronger bite.

The bird's level of "bite inhibition" is also a factor. "Some birds, such as hyacinth macaws, have extremely powerful biting power, but they are docile and will rarely bite at full strength, even when frightened," Soucek said. "Other birds, such as hormonal Amazons, have next to no bite inhibition and will give it all they've got and aim for maximum damage."

Another factor is the biomechanics of the beak structure. "The wider, more shovel-like the lower beak, the more mechanical pressure the bird has, and the harder it can bite. The narrower the beak, the less mechanical force the bird has and the less pressure to its bite," Nemetz said. That is why a canary or toucan — both of which have narrow upper and lower beaks that occlude almost evenly — are not physically able to put as much pressure into their bites as an Amazon or macaw. This is not to say, however, that a softbill bird, such as a toucan, cannot inflict pain. "Toucans are more than capable of breaking skin. They may not have the mechanical advantage that parrots have, but they do have very sharp, serrated beaks," Nemetz said.