

# RAPTOR REPORT

## What's the Average Weight?

*Kit Lacy, Cascades Raptor Center*

*Photos courtesy of Cascades Raptor Center*

This is a question which has been posed by many in the bird training world. While weight is a valuable bit of information, it is just that -- only a modest piece of information in an information rich environment. Many well-meaning trainers want to have a target weight for a raptor. This target is something to aim for as they begin to implement or modify their training plans to include the daily weight of the bird.

However, for certain species of raptors with broad geographic ranges, latitude distributions, subspecies classifications, and overlapping sexual dimorphic weight ranges, it is a less valuable bit of information. To illustrate this, Great Horned Owls (*Bubo virginianus*) are a useful case in point.

This large owl, native to the Americas, has a broad distribution in North, Central, and South America. The species can be found in urban, suburban, subarctic, forest, desert, tropical, and prairie grassland habitats from above the tree line in the northern reaches of inland Alaska to Tierra del Fuego in Chile. The only regions they are conspicuously absent are the Caribbean islands, the Amazon Basin, and some regions of the grasslands of Argentina and Brazil. Scientists have identified 15 subspecies based on variation of plumage and size.

In general, sizes vary by latitude with individuals within the populations of inland Alaska and northeast North America the largest, while individuals within the populations in Baja California Sur and on the Yucatan Peninsula are the smallest. This phenomenon follows "Bergmann's rule" that states that within a broadly distributed species, populations of that species in colder environments tend to be larger while populations in warmer environments tend to be smaller.

If one were to try to find an average weight of Great Horned Owls, they might come across the data from 1969 where the Craighead brothers studied 895 male



and 772 females (from all different subspecies) to find males averaged 1,304g and females averaged 1,706g. However, we know that owls in tropical South America are approximately 80% the size (male) and 75% the size (female) of individuals found in eastern North America. And, that one female owl weighed 2,503g (eastern North America) and one male weighed 608g (coastal Pacific North America).

In addition to not knowing which subspecies the owls in this study belonged to, what we also do not know about this data is the physical condition of the individuals when their weight was obtained. In order to get an idea on the range of weights Great Horned Owls might have in the region where Cascades Raptor Center is located (Eugene, OR, USA), we looked at the weight of owls upon intake into our wildlife hospital from the years 2013-2021. We removed any individuals who were nestlings or non-flighted fledglings from the data. We also eliminated any individual who had a body condition on initial exam categorized as lean or emaciated.

What remained were 33 individual owls ranging from 870g – 1546g. The average weight was 1235g. The subspecies found in our region include *B. v. saturatus* and *B. v. pacificus*. Both are described more by their plumage differences than their size but both subspecies are considered to be smaller than the eastern subspecies *B.*



There is no "average weight" applicable for all Great Horned Owls. Left to right: Valentino (the tiny girl), Neville (the medium girl), and Lorax (the big girl)

*v. virginianus*. One reason for such a large range in size data is, of course, the reversed sexual dimorphism found in most raptor species, with males being smaller than females. In our hospital care, we do not test each patient's sex. Instead, we focus on food consumption, physical condition, and we provide as much food as the raptor will consume to give them some extra reserves before release. In general, if we had known the sex of each of these individuals, we may have been able to narrow down average weights by sex into something more useful. But we assume that some of those owls were large males, and some individuals were small females, as size is not an absolute determination of sex in this species.

Often, a trainer will want to know the sex of the individual to narrow down the target weight for training. But assumptions on what a healthy weight should be for an individual based solely on the sex of the individual can have pit falls as well. Case in point: Valentino, a 12-year-old Great Horned Owl ambassador at Cascades Raptor Center, illegally raised by a member of the public in Northern California.

When Valentino arrived as a fully-fledged, hatch-year bird very well-fleshed at 980g with very small feet, we assumed we knew exactly what sex Valentino had to be: male. Fast forward almost nine years after Valentino's arrival at the Raptor Center, and in the winter of 2018,

Valentino's weight started creeping up daily, we saw behaviors such as nest-lining with belly feathers, solicitation of trainers, and an insatiable appetite. Did it cross my mind that Valentino could be female? No, as we were so certain that the weight did not lie about sex. And in an outrageously written message in one of the training logs we wondered how large an owl's testicles could swell.

And then one cold March morning, I walked in for a training session and Valentino was sitting in the scrape that had been lined with belly feathers. Even then, it wasn't until Valentino got up and targeted to the scale, like we did at the start of every training session, that I realized my mistake. There sat a perfectly

#### Weight Data for Three Great Horned Owls 2019-2021

Bird	Low (summer) weight	High (winter) weight	Average
Lorax	1250g	1540g	1403g
Neville	1050g	1265g	1179g
Valentino	970g	1110 g (before laying, 1300g)	1072g



formed egg under the smallest of female Great Horned Owls that I could imagine.

Upon finding out our mistake, we did not start trying to get Valentino's weight closer to an average female (assuming closer to 1,200 g). And had we known her sex 12 years ago, we may have tried to get her weight closer to that of average female, resulting in obesity for this small-bodied female owl.

Healthy weights should be examined from the lens of the individual raptor. As part of the Cascades Raptor Center's ambassador team, there are three female Great Horned Owls all from Oregon or Northern California. Visually, each are very different in plumage but also in overall size.

While we do weigh the raptors daily, we are not trying to maintain any specific target weight. Instead, we are taking that number into consideration along with the bird's behavior. Targeting to the scale is such a solid behavior for all ambassadors, we sometimes have birds land on the scale before the behavior is cued (behavioral information to gather) or if we ask for a slightly more difficult behavior the bird may instead fly over and land on the scale (an easier behavior and more information to be gathered). The behavior of targeting to the scale becomes more a measure of motivation than just how much that bird weighs.

Other factors influence the weight of raptors as well. Seasonal variations in weight are very common with weights tending to be higher in winter than summer. If the species is migratory, a very large weight gain may be seen in spring and fall. If the bird is flighted, they may be leaner than a disabled individual and weigh less. The behavior of the individual during their training sessions gives you much more valuable information than the number on the scale.

There is no magic number on the scale that will guarantee a successful training session for any animal. Instead, the bird's weight is just a bit of information to add to the trust that animal has with you, the choices it is free to make or not make, their learning history, and the environment in which it is working.

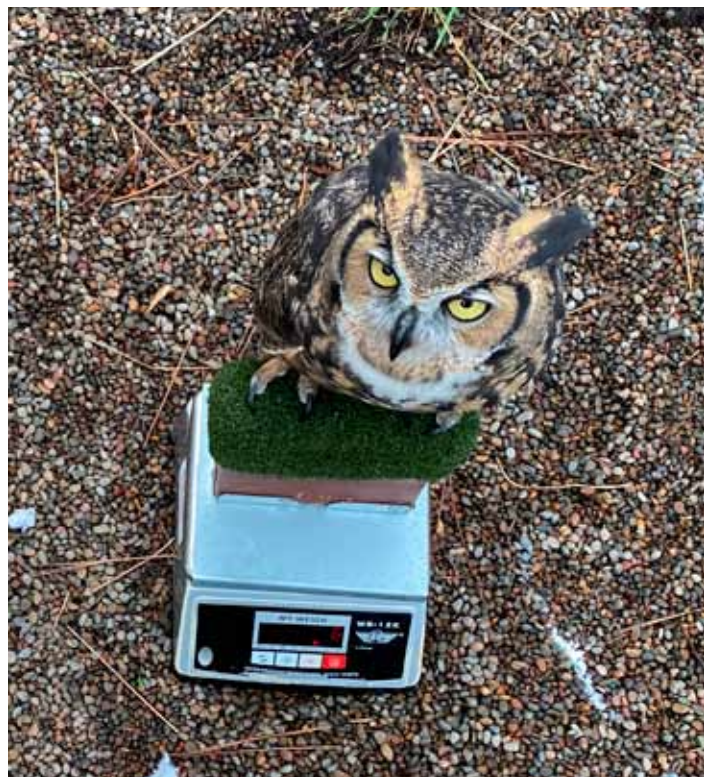
### Reference List

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Above: Valentino on scale (note her egg in the background)

Below: Neville offering a voluntary scale behavior before she was even asked.



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Special thanks to Victoria Willson, Cascades Rehabilitation Assistant, for providing the data on Cascades' hospital patients.