

# IDENTIFICATION CHALLENGE: LESSER VS. GREATER SCAUP

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Winter in Arizona is the season to search for and study the many northern-breeding ducks that overwinter in this region. At this time of year, most ducks are readily identified based on size, plumage, behavior, voice, and/or habitat. This is, however, often not the case for Lesser and Greater Scaups (*Aythya affinis* and *A. marila*) because these species resemble each other (Figure 1), behave similarly, rarely vocalize, and can use the same habitats and be found together. As a result, distinguishing them in the field has long posed a challenge. The two scaup species winter regularly in Arizona (Figure 2), but in vastly different numbers (Monson and Phillips 1981): Lesser Scaup is widespread, whereas Greater Scaup is scarce outside the lower Colorado River region. Illustrating this difference, Figure 3 displays the number of birds of each species found during 10 recent Christmas Bird Counts of the National Audubon Society in a section of the Phoenix metropolitan area. Acknowledging the scarcity of the Greater Scaup, it is listed as a Sketch Details Species, whose occurrence outside the lower Colorado River region should be documented through notes or photos (AZFO 2019). As many Arizona birders may have limited first-hand experience with Greater Scaup, learning to separate this taxon from the Lesser Scaup is essential in order to identify it correctly. In a broader sense, it is important to accurately assess the current and future status of the two species since it has been documented that their North American populations have declined considerably in recent decades (Austin et al. 2000).



Figure 1. Male Greater and Lesser Scaups in basic plumage, 27 December 2008. Photo by Pierre Deviche.

## Lesser Scaup

## Greater Scaup

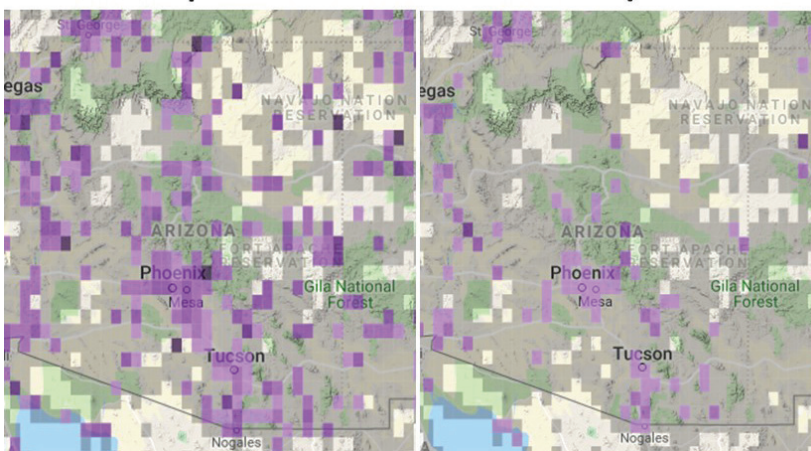


Figure 2. Arizona winter records of Lesser and Greater Scaups as of 31 December 2018. Purple squares represent locations where each species has been recorded between November and March 1900 – 2019. Source: eBird 2018.

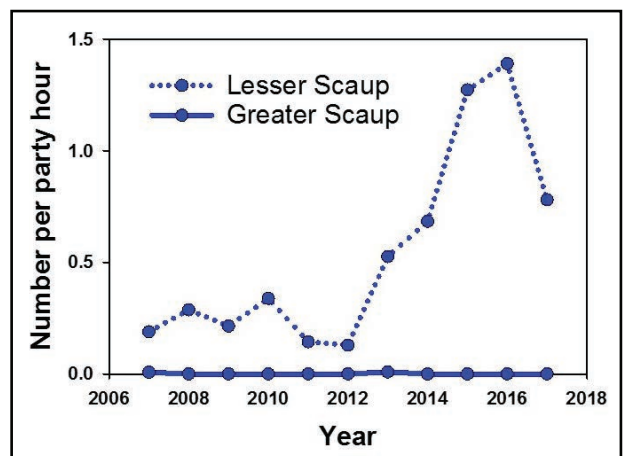


Figure 3. Number of Lesser and Greater Scaups counted 2007-2017 in the Phoenix-Tres Rios Christmas Bird Count (AZPT; Maricopa, AZ). Source: National Audubon Society 2007-2017.

The Greater Scaup in Arizona is only casual in spring and early summer (Tucson Audubon Society 2015; Witzeman and Corman 2017), and so birds in alternate (“summer” or “eclipse”) plumage are rarely encountered. This article accordingly focuses on the characteristics of scaups in basic (“winter”) plumage, as these are the birds that are most likely to be encountered in the state. It should, however, be kept in mind that many Anatidae, including scaups, have complex and protracted molt patterns with some individuals continuing to molt contour feathers during winter (Kessel et al. 2002; Anteau et al. 2014). As a result, winter scaups having not yet attained complete basic plumage are not unusual (Figure 4). For additional information on differences between the two scaup species, readers are referred to previously published articles (Barry et al. 2006; Kaufman 2011; Leukering 2011; Sibley 2014) and websites including:

- Greater or Lesser Scaup? Here Are the Biggest Differences Between the Two  
<https://www.audubon.org/news/greater-or-lesser-scaup-here-are-biggest-differences-between-two>
- Is It a Greater Scaup or Lesser Scaup?  
<https://www.thespruce.com/greater-scaup-or-lesser-scaup-387345>
- Comparison of Lesser and Greater Scaup  
<https://biology.eku.edu/kos/scaup.html>

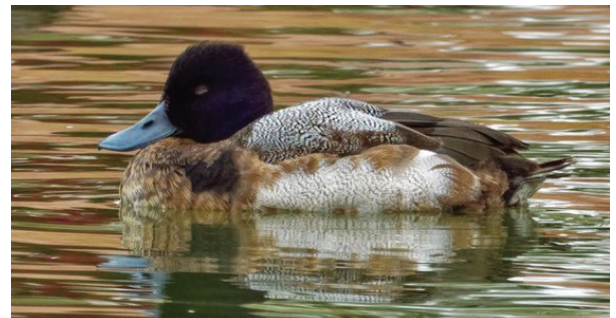


Figure 4. Male Lesser Scaup in incomplete basic (winter) plumage, 1 January 2019. Note extensive areas of brown plumage on breast, flanks, and rear. Photo by Pierre Deviche.

Male and female scaups in basic plumage are readily distinguished based on coloration (Figure 5): males have a dark head and rear and an overall pale body, whereas females have a dark brown body, generally with a white area of variable size around the bill (Sibley 2014). By contrast, within each sex, the two species are quite similar and so separation requires careful study of subtle differences. As explained below, this separation should rely primarily on the head shape and on the bill size, shape, and (in males) coloration. In birds in flight, the wing pattern can provide additional information. As the appearance of these features can vary as a function of age, molt stage, ambient light, behavior of the birds (e.g., resting, alert, diving), etc., determination of species identity is most reliable when based on examination of not one, but several features.



Figure 5. Adult male and female Lesser (1 January 2019) and Greater (male: 27 December 2008; female: 12 January 2018) Scaups in basic plumage. Photos by Pierre Deviche.

## Head shape

Leukering (2011) offers a detailed comparative analysis of the head shape of the two scaup species.

### Side view

In the Lesser Scaup, crown feathers form a peak toward the rear of the head (behind the eye; Figures 1, 5, and 6). In contrast, this peak in the Greater Scaup is toward the front of the head (at or in front of the eye), and it is less pronounced than in the Lesser Scaup (Kaufman 2011; Sibley 2014). As a result, the Greater Scaup's head looks more rounded and larger relative to the body than is the case for the Lesser Scaup.

### Frontal view

The Lesser Scaup has a narrower and taller head than the Greater Scaup (Figure 7, left 2 panels). In the latter species, the width of the head expands more below the eye than in the Lesser Scaup, resulting in a heavy-jawed look. Note that the apparent head shape in both species can vary as a function of posture (e.g., relaxed vs. alert). For example, the Lesser Scaup can in some situations appear to be heavier-jawed than the Greater Scaup (Figure 7: compare right photo with middle photo). For both species, prolonged and careful observation may thus be necessary in order to draw firm conclusions regarding the head shape.

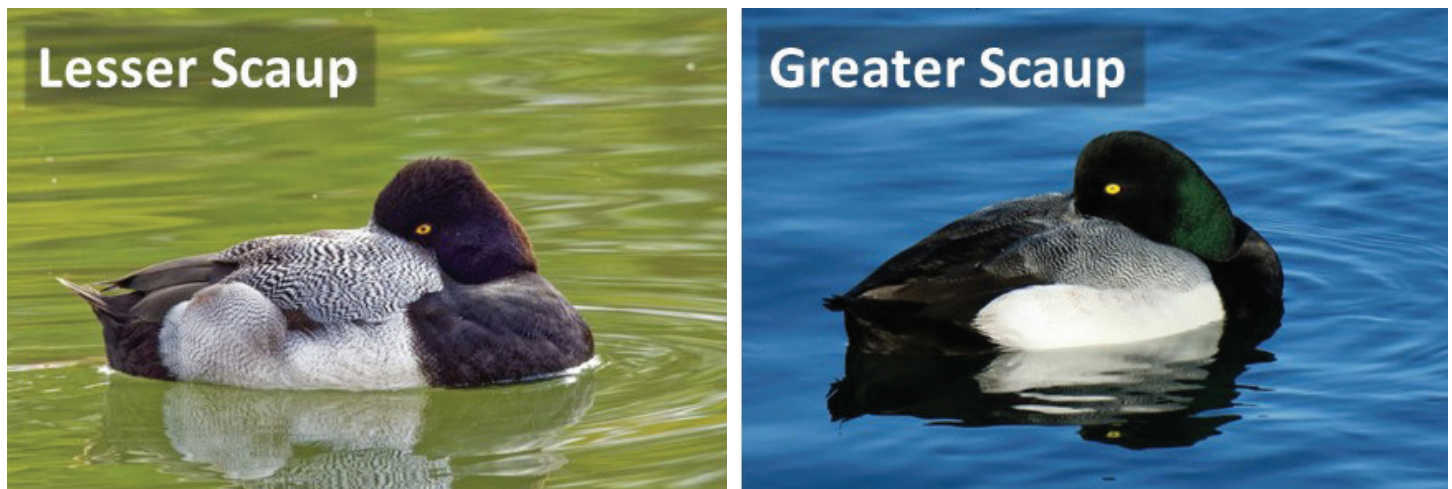


Figure 6. Male Lesser and Greater Scaups in relaxed posture. Note distinct head peak behind (Lesser Scaup) and in front of (Greater Scaup) the eye. Left: Photo by Pierre Deviche, 1 January 2019; right: Photo provided by eBird ([www.ebird.org/](http://www.ebird.org/)) and created 31 December 2018.



Figure 7. Left and right panels: Adult male Lesser Scaups. Center panel: Adult male Greater Scaup. Left: Photo by Jack Hutchison/Macaulay Library at the Cornell Lab (ML132058411), 30 December 2018. Center: Photo by Photo by Brian Daniels/Macaulay Library at the Cornell Lab (ML136779381), 3 March 2012. Right: Photo by Pierre Deviche, 1 January 2019.

## Bill shape and size

### Side view

The upper mandible is more concave and the bill smaller in the Lesser than in the Greater Scaup (Figure 8). These differences convey the impression of the latter species having a deeper-based bill and overall slightly longer head than does the Lesser Scaup.

### Frontal view

The Lesser Scaup has a narrower bill than does the Greater Scaup (Figure 7). Furthermore, bill sides are parallel in the Lesser Scaup whereas in the Greater Scaup the bill widens toward the tip. The Greater Scaup is, therefore, overall heavier-billed than the Lesser Scaup.

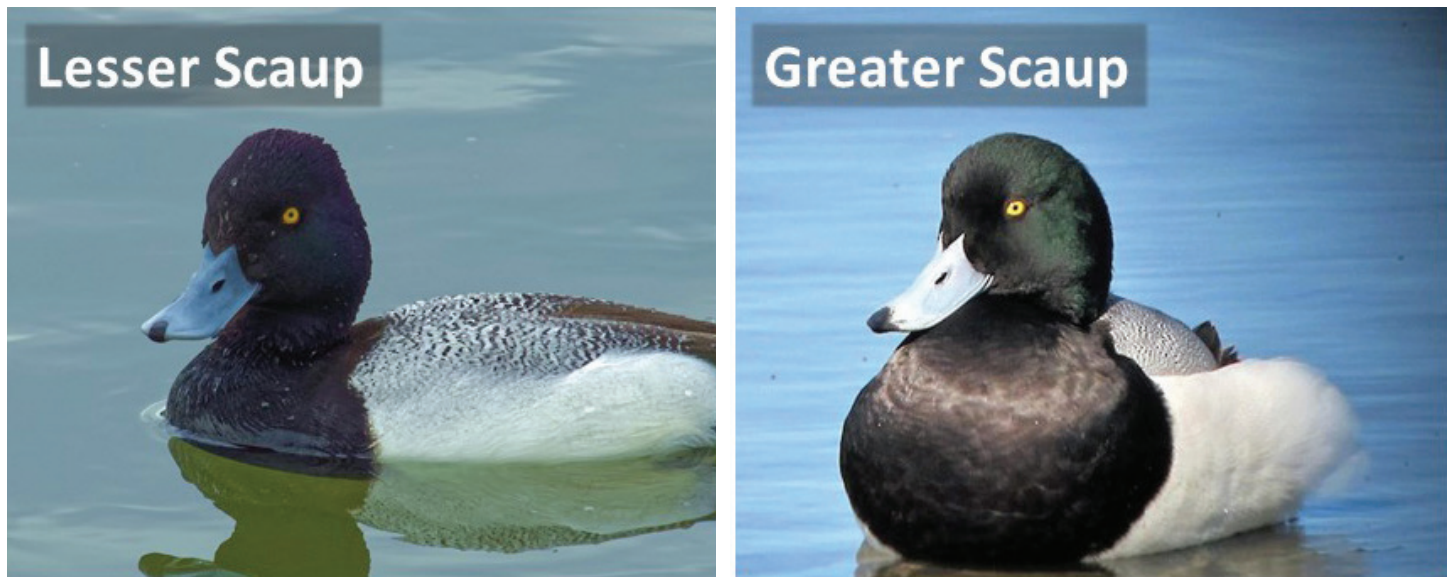


Figure 8. Side view of the bill in male Lesser (left) and Greater (right) Scaups. Left: Photo by Pierre Deviche, 6 March 2016; right: Photo by Brian Daniels/Macaulay Library at the Cornell Lab (ML136779361), 3 March 2012.

## Bill tip coloration

In both species, the bill tip has a black nail whose coloration contrasts with that of the rest of the bill (Figures 7 and 8). This nail in the Lesser Scaup is rectangular. In the Greater, but not the Lesser Scaup, a dark area of variable size often extends lateral to the nail and so the bill appears to have a dark triangular tip mark (Leukering 2011; Sibley 2014). Consequently, males showing this mark can be reliably identified as Greater Scaups. Recall, however, that not all male Greater Scaups have this bill mark, in which case they cannot be separated from male Lesser Scaups using this feature. As well, the above differences apply only to males, as females show an altogether different bill coloration pattern.

## Wing pattern in flight

Most Lesser Scaups have mostly gray primaries and white secondaries (Figure 9). Thus, birds in flight typically show a white wing band that is restricted to the secondaries. The primary feathers of most Greater Scaups have more white than those of Lesser Scaups, i.e., the white wing band of Greater Scaups extends into the primaries. Thus, birds with white extending well into the primaries can normally be identified safely as Greater Scaups. Due caution is, however, warranted when relying on this feature for species identification. Indeed, some Lesser Scaups have more white and some Greater Scaups less white than is the case of typical birds of either species. Thus, at the population level, some overlap exists between the two species with respect to the wing pattern. Furthermore, the amount of white in the wings is sex- and age-related, with adults and males of both species showing more extensive white than age- and sex-matched females (Leukering pers. comm.).



Figure 9. Wing pattern of adult male Lesser and Greater Scaups. Lesser Scaup: Photo by Nels Nelson, Macaulay Library at Cornell Lab (ML132519791), 1 January 2019; Greater Scaup: Photo by Frank Pinilla, Macaulay Library at Cornell Lab (ML91137711), 16 February 2018.

Besides the above characteristics and as described below, other features can help with species determination. However, these features either are difficult to evaluate based on observation of isolated birds (body size) or are individually variable and overlap between the two species (plumage coloration), and so are not considered diagnostic.

### Body size

The Greater Scaup averages larger than the Lesser Scaup (average weight: Greater Scaup: 1,050 g; Lesser Scaup: 830 g; Sibley 2014). This difference is apparent when birds of the two species are seen together and can be compared, but is of no particular use for identifying isolated birds.

### Male head color

The heads of Lesser and Greater Scaups are often described as having a purple and a green sheen, respectively. This difference is best seen in birds in "ideal conditions" (i.e., bright light and when the two species are present side by side for direct comparison; Figure 1; Kessel et al. 2002). However, as others have pointed out (Kaufman 2011), head color can be unreliable to separate males seen alone or in less than ideal light condition. In addition, even in bright light and as Figure 10 illustrates, the male Lesser Scaup can have a distinct green head sheen. Thus, head color alone is of little use to separate male Lesser from male Greater Scaups.



Figure 10. Male Lesser Scaups in basic plumage. Note the head sheen that, depending on light conditions, can be green (left) or purple (right). Photos by Pierre Deviche, 4 (left) and 3 (right) January 2019.

## Male flank color

Male Greater and Lesser Scaups in basic plumage typically have pale flanks with fine dark vermiculations. In addition, some birds show brown flank smudges that represent remnants of basic or immature plumage (Figures 5, 10, and 11). The male Greater Scaup in basic plumage has been described as tending to have paler flanks (“gleaming white”) than the male Lesser Scaup in this plumage (“slightly gray”; Barry et al. 2006). However, the importance of flank coloration to separate the two species is limited for two main reasons. First, apparent flank color and brightness can vary substantially depending on light conditions at the time. Second, and as noted above, some males of both species undergo continuing molt from alternate (and possibly immature) to basic plumage during winter and so have not attained full basic plumage during this season.

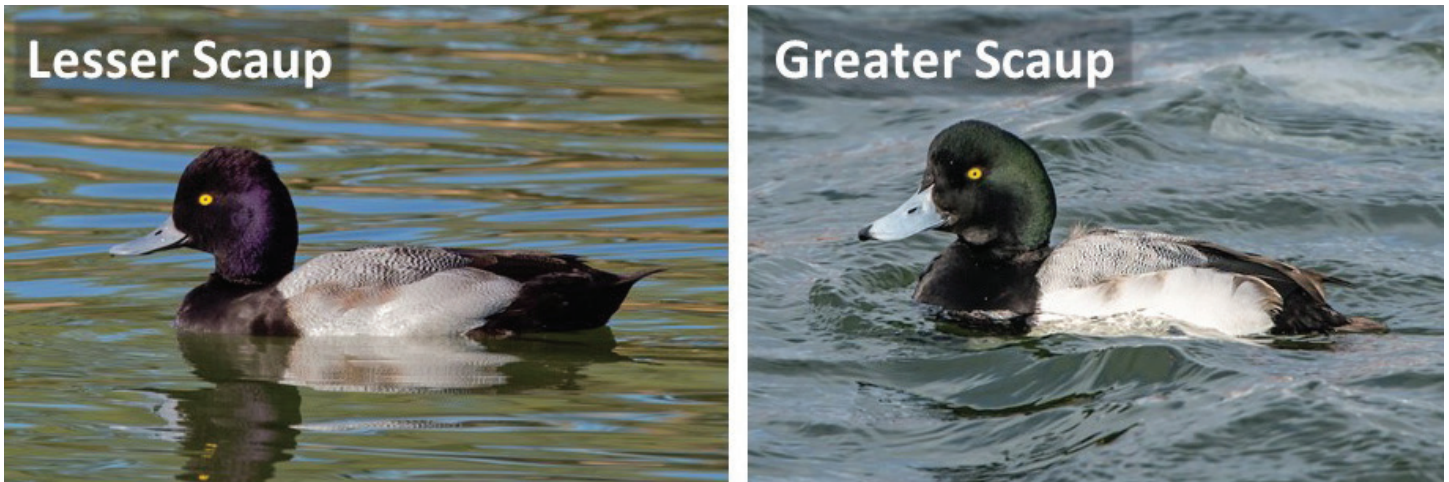


Figure 11. Male Lesser (left) and Greater (right) Scaups in basic plumage showing flanks with brown smudges, which result from incomplete molt from juvenile or alternate plumage. Left: Photo by Pierre Deviche, 4 January 2019; right: Photo by Frank King, Macaulay Library at Cornell Lab (ML134822091), 13 January 2019.

## Female auricular patch

The published literature refers to some female Greater Scaups having a pale auricular patch in spring and summer, and some Lesser Scaups also showing this patch, but less distinctly so than in the Greater Scaup, in summer (Kessel et al. 2002; Dunn and Alderfer 2008; Figure 5). The auricular patch results from gradual dark feather tip abrasion and is thought to develop earlier after basic molt in Greater than in Lesser Scaup (Leukering pers. comm.). Accordingly, females in winter with a well-defined pale auricular patch are likely to be Greater Scaups. However, considering that some female Lesser Scaups also develop this patch and that the time course of this development is not well understood, caution is urged when using this character to separate females of the two species, particularly in late winter and early spring.

## CONCLUSIONS


The field identification of North American adult scaups in basic plumage can be challenging. To identify these birds, observers should focus primarily on the head shape and the bill shape, size, and (in males) coloration. These features differ consistently between species, are independent of ambient light conditions, and can be studied without both species being present together for direct comparison purpose. Additional features, such as the body size when several birds are present and the presence of pale auricular patches in females, can provide important clues; however, the value of these characteristics for identification purpose is limited. With patience and careful observation, most birds in basic plumage should be identifiable.

## ACKNOWLEDGMENTS

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