



# Wild Phenomena

## Wildlife Resources for Educators

<h1>BAR-HEADED GEESE CONQUER THE HIMALAYAS</h1>	<div> </div> <div> <h3>Bar-headed Geese Conquer the Himalayas</h3> </div> <div> <p>In 1953, Edmund Hillary and Tenzing Norgay were preparing for their final push to the summit of Mount Everest, in the Himalayan Range between India and China. Everest stands at over 29,000 feet tall and is considered the tallest mountain in the world. At that height, every breath and step is a painful effort which explains why no one had ever been successful reaching the top.</p> </div> <div> </div> <div> <p>Researchers attach a satellite transmitter to a bar-headed goose. Photo credit: Brian Prosser, USGS.</p> </div> <div> <p>George Lowe was on the journey as well. He was responsible for shutting supplies necessary for man's first conquest of Mount Everest. At one point, Lowe is exhausted and takes a break on the side of the mountain.</p> </div> <div> <p>While struggling to catch his breath, he looks up and sees something remarkable: a goose flying effortlessly over the summit!</p> </div> <div> <p>Many people were skeptical of Lowe's account. Perhaps it was a hallucination from an oxygen deprived mind. This might explain why he did not immediately share his observation.</p> </div> <div> <p>In 1960, Sir Edmund Hillary returned to the Himalayas. He led an expedition to investigate, among other things, whether Yeti really existed. Joining him was a team of mountaineers, physiologists and two animal biologists. Dr. Lawrence Swan was one of those biologists. In 1961, he published a detailed account of the animals and plants he found including Himalayan frogs, leeches, lice and fish. However, his sighting of geese was probably his most astonishing.</p> </div> <div> <p>"On one such cold and still night in early April, I stood beside the Barun Glacier. At 16,000 feet, above nearly half of the atmosphere, the stars were brighter, and old familiar constellations acquired new, small bits of light unseen at lower elevations...and then a sound came: a quiet hum, muffled by distance... Then as if from the stars above me, I heard the hooting of bar-headed geese."</p> </div> <div> <p>- Dr. Lawrence Swan, <i>Tales of the Himalaya</i> (1961)</p> </div> <div> <p>Arizona Game and Fish Department   Focus Wild Arizona   www.azgfd.gov/focuswild</p> </div> <div> <p>Swan later spoke with George Lowe. At that time, Lowe reported that he had seen bar-headed geese flying above him from the high slopes of Everest, as well.</p> </div> <div> </div> <div> <p>In 2013, scientist Lucy Hawkes and her team placed tracking devices on bar-headed geese and mapped their migration over and through the Himalayas.</p> </div> <div> <p>The map above shows the paths that the geese travelled during the study. Each colored line represents a different goose. The white crosses represent some of the highest mountains in the range and the world.</p> </div> <div> </div> <div> <p>The graph to the left shows the average altitude (or height) that the geese flew as they moved from India to Mongolia. For scale, 5000 meters is approximately 16,400 feet.</p> </div> <div> <p>Information and quotes for this article were provided by:</p> </div> <div> <ul style="list-style-type: none"> <li>Hawkes, L. et al. "The paradox of extreme high-altitude migration in bar-headed geese <i>Anser indicus</i>." <i>Proceedings: Biological sciences</i> vol. 280, 1750 (2013); 20122114. doi:10.1098/rspb.2012.2114</li> <li>Hawkes, Lucy. <i>On a Wild Goose Chase</i>. Adventure Medic. Dec. 23, 2015. <a href="https://www.theadventuremedic.com/features/wild-geese-chase/">https://www.theadventuremedic.com/features/wild-geese-chase/</a></li> </ul> </div> <div> <p>Arizona Game and Fish Department   Focus Wild Arizona   www.azgfd.gov/focuswild</p> </div>
<h3>Description</h3>	<p>This short article describes the unusual observations of geese flying above the Himalayas during their migration.</p>
<h3>Link</h3>	<p><a href="https://drive.google.com/file/d/1FoUKXMUDsmOd44l8SwtCsBh_JnxKxEQA/view?usp=sharing">https://drive.google.com/file/d/1FoUKXMUDsmOd44l8SwtCsBh_JnxKxEQA/view?usp=sharing</a></p>
<h3>Classroom Application</h3>	<p>This phenomena can be used as the start of a migration unit. Students could review the article and then ask questions about why these birds migrate, why do they go over the mountains instead of around, how they are able to do it, how does this compare to other migrations, etc. This will allow younger students to explore basic topics of migration but also allow older students to dive into the mechanics and physiology of migration. There are also opportunities to discuss geology and evolution, specifically discussing how the development of the Himalayas over the past millions of years has impacted the development of adaptations necessary for these birds to continue their migrations.</p>
<h3>Potential Grades and Standards</h3>	<p><b>THIRD:</b> Science 3.L2U1.6; <b>FOURTH:</b> Science 4.L4U1.11; <b>FIFTH:</b> Science 5.L3U1.10; <b>SEVENTH:</b> Science 7.L1U1.11; <b>EIGHTH:</b> Science 8.L4U1.12; <b>HIGH SCHOOL:</b> Science HS.L4U1.28, Plus HS+B.L4U1.14</p>
<h3>Additional Background</h3>	<p><a href="https://www.theadventuremedic.com/features/wild-geese-chase/">https://www.theadventuremedic.com/features/wild-geese-chase/</a>  <a href="https://royalsocietypublishing.org/doi/10.1098/rspb.2012.2114">https://royalsocietypublishing.org/doi/10.1098/rspb.2012.2114</a></p>
<h3>Contributor</h3>	<p>Eric Proctor, AZ Game and Fish Department</p>