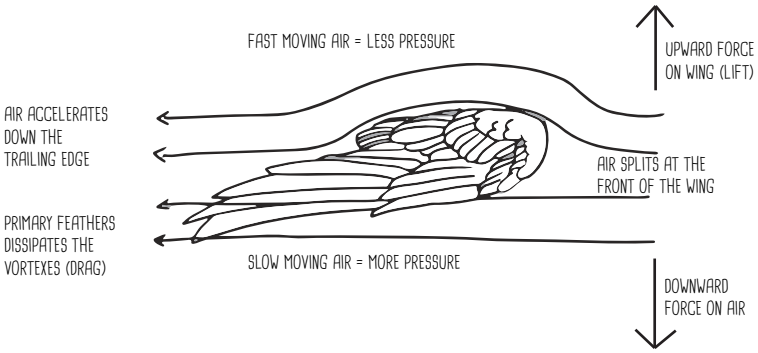
BirdLife SOUTH AFRICA
Giving Conservation Wings

BIRD OF THE YEAR 2017
VULTURE FLIGHT DYNAMICS

Vultures are large, heavy birds that have adapted over millions of years to fly over long distances in order to search for food, all with a little help from rising air currents. Vultures have long, broad wings which make them very good at gliding and soaring. In order to take off from the ground, they do a run up and flap their large wings to create forward and upward thrust. They only do this until they reach a height where they can ride moving air currents such as mountain winds and thermals. They are not able to fly over vast distances if there is no updraft or air current as they would have to use a lot of energy to flap their wings to keep their heavy bodies aloft.

HOW LIFT IS CREATED ON THE WING



The wings of vultures are broad and long with a slight curve at the top. This gives the top part more surface area than the bottom. Air will move faster over the bigger surface area than the smaller surface area which reduces the air pressure and creates lift.

VULTURES THERMALLING BETWEEN THERMAL UPWARD AIR CURRENTS

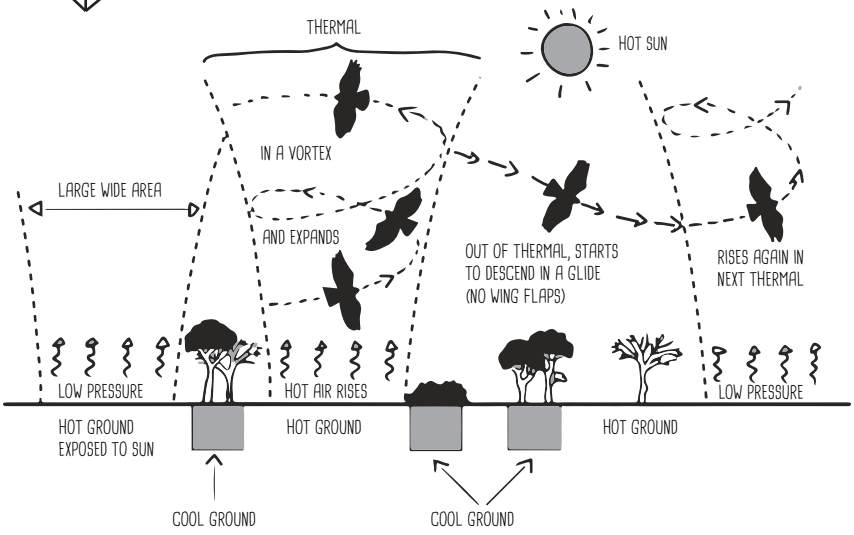


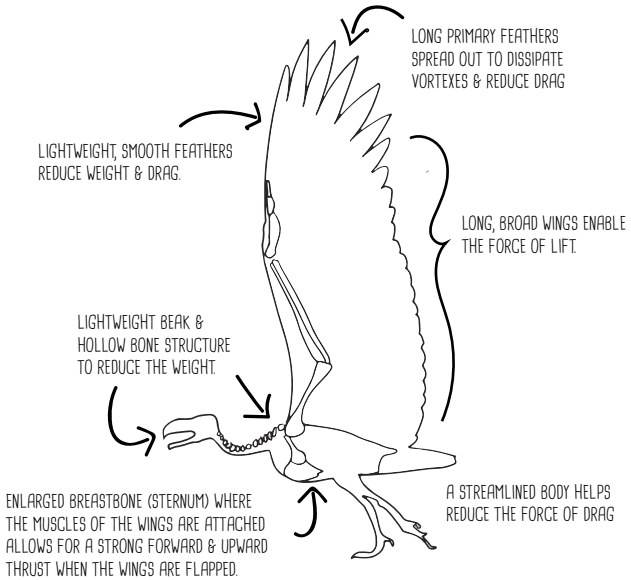
Image adapted from Trevor Carnaby's book, Beat About the Bush: Birds. pg 106.

Vultures especially love thermals - rising hot air that spirals upwards in a vortex until it dissipates. Thermals are created by the sun heating up exposed ground. Hot air always rises and therefore creates the perfect scenario for vultures to catch a lift high up into the sky. Once they reach the top, they fly out of the thermal and descend into a glide in the direction they want to go, until they find the next thermal, where they can gain some height again. Their broad, long wings create a large surface area that allows the air to create more lift using less energy.

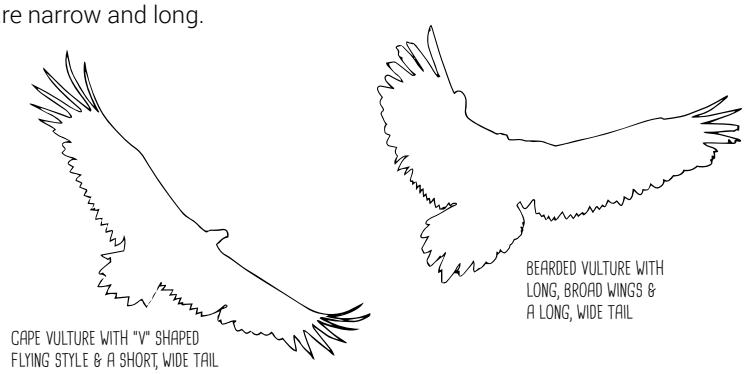
Their large wings however create vortexes which may interrupt the air flow. They counter this with long primary feathers at the tip of their wings, which looks like spread out fingers. This disperses the vortexes, allowing the air to flow freely and smoothly over the wings. If you see a large bird with long broad wings and you clearly see these spread out "fingers" then it is most likely a vulture.

VULTURES ADAPTED FOR SOARING & GLIDING

THERE ARE FOUR FORCES OF FLIGHT: WEIGHT, LIFT, DRAG & THRUST



All vultures have long broad wings, but their shape may differ. Griffon vultures (such as the Cape Vulture) have slightly curved wings on the trailing edge and they hold them in a very shallow 'V' when gliding. The Lappet-faced Vulture, by contrast, has very straight wings which give them the effect of long and broad rectangles. The Bearded vulture also has long broad wings, but its long tail gives it the illusion that the wings are narrow and long.



Vultures also have wide tails that can be fanned out to help them steer. It is used for fine steering at low speeds. When the bird wants to land, it will spread out its tail to prevent it from stalling. The Egyptian and Bearded Vultures have long, wedge-shaped tails. Their long tails help them to steer through draughts and turbulences that regularly occur close to cliffs and high mountain ranges where these vultures are most likely to occur. The rest of the vultures have shorter tails of which the griffon vultures have the shortest.

Source: MUNDY, P., BUTCHART, D., LEDGER, J. & PIPER, S. 1992. The vultures of Africa. Academic Press, London.
Content and Illustrations: Chrissie Cloete trading as ChrissieCanDraw