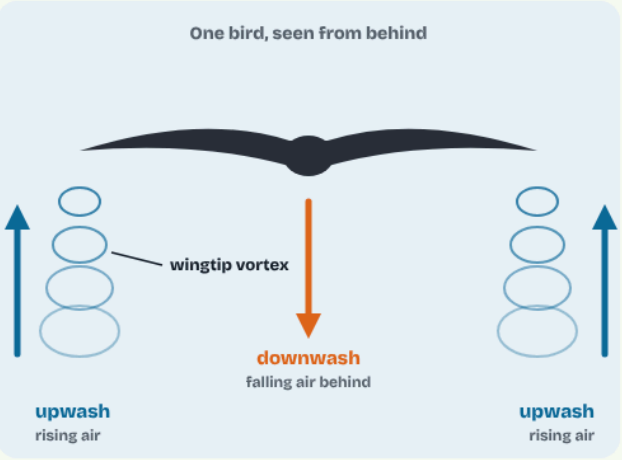
That is why

Why do birds fly in a V formation?

Each wingtip leaves rising air just outside it. The next bird rides that lift, and the birds share the tiring front spot.

A The air behind one wing



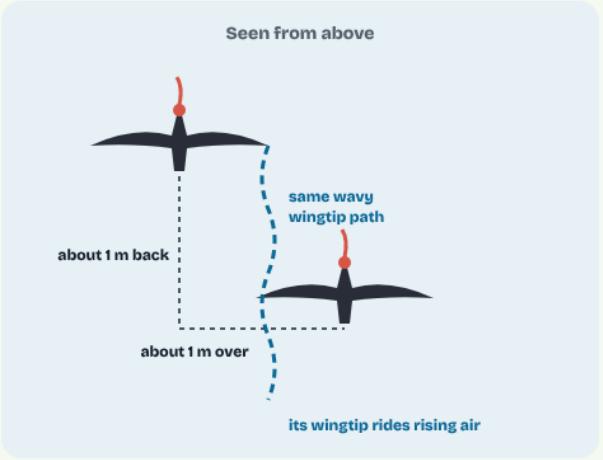
"The simple rule is upwash is good air, and downwash is bad air."

Steven Portugal, Royal Veterinary College

Who flies in a V?

Big, slow-flapping birds: geese, cranes, pelicans, cormorants, ducks and swans. Behind small birds, the spinning air may fade before anyone can use it.

B Where to fly



Flap timing

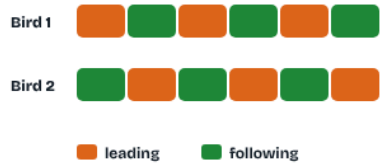
In the V: flap in step, so the wingtip stays in the lift from the top of the beat to the bottom.
Directly behind: flap almost perfectly out of step, which seems to soften the falling air.

Better than expected

Scientists guessed the ibis would hit the good air maybe 20% of the time. Tiny GPS loggers showed they track it through the whole flap cycle (Nature, 2014).

C Taking turns

A pair of ibis, over time



Time leading matches time following.
No cheating was found.

The Oxford study (2015)

14	young northern bald ibis
23 g	logger on each bird
2 to 12	birds per group
32%	of time riding another bird's air

Salzburg, Austria, to Orbetello, Italy

Why it matters

Up to 35% of young birds may die of exhaustion on a first migration. Trailing birds may save up to 10-14% of their energy. Pelicans at the back of a V had slower heart rates.

Like cyclists in a crosswind echelon: everyone takes a turn at the front, but birds ride rising air.

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