

Cattle shown to align north-south

By Elizabeth Mitchell

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Cattle partake in some directional grazing

Have you ever noticed that herds of grazing animals all face the same way?

Images from Google Earth have confirmed that cattle tend to align their bodies in a north-south direction.

Wild deer also display this behaviour - a phenomenon that has apparently gone unnoticed by herdsman and hunters for thousands of years.

In the Proceedings for the National Academy of Sciences, scientists say the Earth's magnetic fields may influence the behaviour of these animals.

The Earth can be viewed as a huge magnet, with magnetic north and south situated close to the geographical poles.

Many species - including birds and salmon - are known to use the Earth's magnetic fields in migration, rather like a natural GPS.

A few studies have shown that some mammals - including bats - also use a "magnetic compass" to help their sense of direction.

Dr Sabine Begall, from the University of Duisburg-Essen, Germany, has mainly studied the magnetic sense of mole rats - African animals that live in underground tunnels.

"We were wondering if larger animals also have this magnetic sense," she told BBC News.



This sense may be quite widespread in the animal kingdom

Dr Begall and colleagues first decided to study the natural behaviour of domestic cattle.

The researchers surveyed Google Earth images of 8,510 grazing and resting cattle in 308 pasture plains across the globe.

"Sometimes it took hours and hours to find some pictures with good resolution," said Dr Begall.

The scientists were unable to distinguish between the head and rear of the cattle, but could tell that the animals tended to face either north or south.

Their study ruled out the possibility that the Sun position or wind direction were major influences on the orientation of the cattle.

Dr Begall said: "In Africa and South America, the cattle (were) shifted slightly to a more north-eastern-south-western direction.

"But it is known that the Earth's magnetic field is much weaker there," she explained.

The researchers also recorded the body positions of 2,974 wild deer in 277 locations across the Czech Republic.

Their fieldwork revealed that the majority of grazing and resting deer face northward. About one-third of the deer faced southward.



Forest dormitory: Deer "beds" are seen in a line

"That might be some kind of anti-predatory behaviour," speculated Dr Begall.

Willy Miller - a Scottish cattle farmer - remarked: "I've never noticed that my cows all face the same way."

Cows are social animals: "[They] all sit down before it rains [and] huddle together in a circle formation during blizzards. But from a cow's point of view, that's just sensible," he told BBC News.

Professor John Phillips, a sensory biologist from Virginia Tech University, US, commented that this sixth magnetic sense might be "virtually ubiquitous in the animal kingdom".

He added: "We need to think about some really fundamental things that this sensory ability provides in animals."

The challenge remains for scientists to explain how the animals behave in this way - and if Scottish cattle are the exception to the rule!