

CONSTELLATION LACERTA, THE LIZARD

Lacerta is one of the 88 modern constellations defined by the International Astronomical Union. Its name is Latin for lizard. A small, faint constellation, it was created in 1687 by the astronomer **Johannes Hevelius**. Its brightest stars form a "W" shape similar to that of Cassiopeia, and it is thus sometimes referred to as 'Little Cassiopeia'. It is located between Cygnus, Cassiopeia and Andromeda on the northern celestial sphere. The northern part lies on the Milky Way.

Hevelius catalogued 10 components; **Argelander**, 31; and **Heis**, 48. They come to the meridian about the middle of April. **It has no named star, and its lucida, alpha, is only of 3.9 magnitude.**

Lacerta is typical of Milky Way constellations: no bright galaxies, nor globular clusters, but instead open clusters, for example NGC 7243, the faint planetary nebula IC 5217 and quite a few double stars. **It also contains the prototypic blazar *BL Lacertae*, an entire group of celestial objects are today called BL Lacertae objects.** Lacerta contains no Messier objects. This inconspicuous constellation, sandwiched between Cygnus and Andromeda like a lizard between rocks, was introduced by the Polish astronomer Johannes Hevelius in his star catalogue of 1687. Hevelius gave it the alternative title of *Stellio*, a type of lizard also known as a starred agama, but this secondary name soon fell into disuse.

There are no legends associated with this constellation

STARS

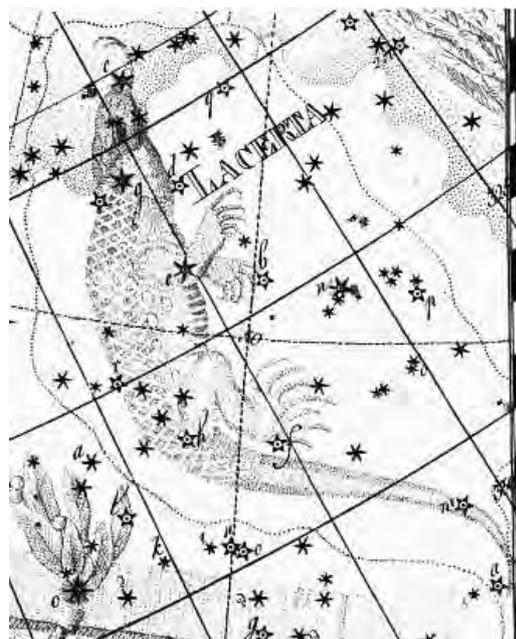
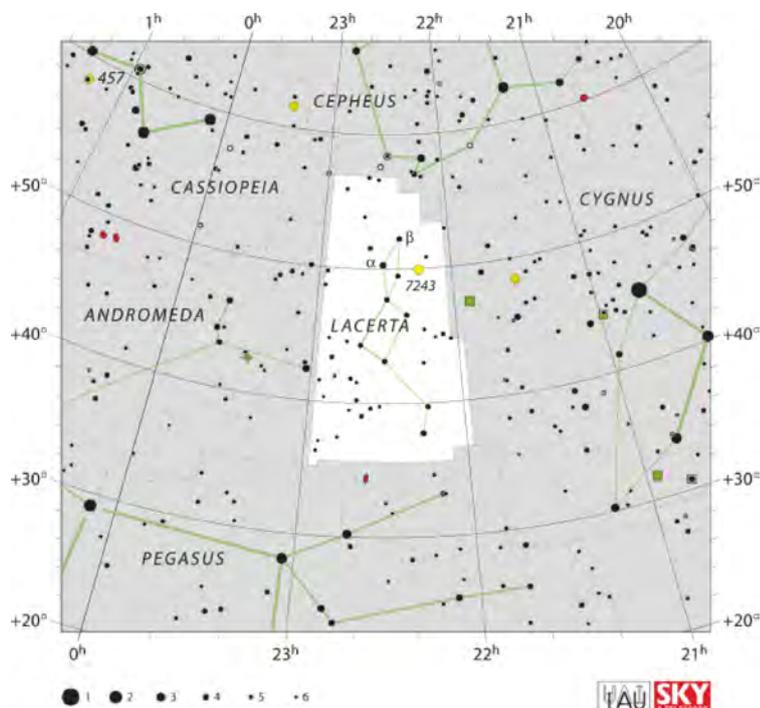
Alpha Lacertae is a blue-white hued main-sequence star of magnitude 3.8, 102 light-years from Earth. It has a spectral type of A1 V and is an optical double star.

Beta Lacertae is far dimmer, a yellow giant of magnitude 4.4, 170 light-years from Earth.

Roe 47 is a multiple star consisting of five components (magnitudes 5.8, 9.8, 10.1, 9.4, 9.8).

ADS 16402 is a binary star system in Lacerta, around which a planet orbits with some unusual properties. The Jupiter-sized planet exhibits very low density, about the same as cork. This planet is dubbed HAT P-1.

EV Lacertae is a rapidly spinning magnitude 10 red dwarf with a strong magnetic field. It is a flare star that can emit powerful flares potentially visible to the naked eye, thousands of times more energetic than any from Earth's sun. For many years scientists have known that our sun gives off powerful explosions, known as flares, that contain millions of times more energy than atomic bombs. What makes the flare particularly interesting is the star *EV Lacertae* is much smaller and dimmer than our sun. In other words, a tiny, wimpy star is capable of packing a very powerful punch. How can such a small star produce such a powerful flare? The answer can be found in *EV Lacertae*'s youth. Whereas our sun is a middle-aged star, *EV Lacertae* is a toddler. The star is much younger than our sun, and is still spinning rapidly. The fast spin, together with its churning interior, whips up gases to produce a magnetic field that is much more powerful than the sun's magnetic field. **On April 25, 2008, NASA's Swift satellite picked up a record-setting flare of the star, it was the brightest flare ever seen from a star other than the sun.**



EV Lacertae is a red dwarf only 16.5 light years from Earth

DEEP-SKY OBJECTS

NGC 7243 is an open cluster 2500 light-years from Earth, visible in small amateur telescopes. It has a few dozen "scattered" stars, the brightest of which are of the 8th magnitude.

BL Lacertae is the prototype of the *BL Lacertae* objects, which appear to be dim variable stars but are actually the variable nuclei of elliptical galaxies; they are similar to quasars. The object varies irregularly between magnitudes 14 and 17 over a few days.

HISTORY

Centred on a region of the sky without apparently bright stars, Lacerta was apparently not regarded as a constellation by ancient Western astronomers. Johannes Hevelius created the constellation in 1687 and initially christened it "Stellio" (the stellion), a newt with star-like dorsal spots found along the Mediterranean coast. Lacerta was extended northwards by **Flamsteed**, who incorporated into it a triangle of stars that Hevelius had depicted as part of the turban of Cepheus. Later mapmakers such as Bode showed these three stars as the head of the enlarged lizard; they are now known as Alpha, Beta and 9 Lacertae. Alpha and Beta are the constellation's two brightest stars, but are of only fourth magnitude.

Other Europeans who sought to name this new constellation included **Augustin Royer**, who created *Sceptrum et Manus Iustitiae* (the Hand of Justice and Sceptre) to honor Louis XIV in 1670, and **Johann Elert Bode**, who created *Frederici Honores* (Frederick's Glory) to honour his sovereign Frederick the Great in 1787. Both are now obsolete, while Lacerta still survives.

This inconspicuous constellation was formed by Hevelius from outlying stars between Cygnus and Andromeda, the special figure having been selected because there was not space for any of a different shape. But he drew "a strange weasel-built creature with a curly tail," heading the procession of his offerings to Urania illustrated in his *Firmamentum Sobiescianum* of 1687.

In 1641 Hevelius built an observatory on the roofs of three connected houses, equipping it with splendid instruments, including a large Keplerian telescope of 46m focal length, with a wood and wire tube he constructed himself. This may have been the longest "tubed" telescope before the advent of the tubeless aerial telescope. The observatory was known by the name *Sternenburg* (Latin: *Stellaeburgum*).

As a subject of the Polish kings, Hevelius enjoyed the patronage of four consecutive kings of Poland, and his family was raised to the position of nobility by the King of Poland **Jan Kazimierz** in 1660.

FACTS

Lacerta is the 68th constellation in size, occupying an area of 201 square degrees. It is located in the fourth quadrant of the northern hemisphere (NQ4) and can be seen at latitudes between +90° and -40°.

The neighbouring constellations are Andromeda, Cassiopeia, Cepheus, Cygnus and Pegasus.

Lacerta has one star with known planets and contains no Messier objects.

The brightest star in the constellation is Alpha Lacertae, with an apparent magnitude of 3.76.

There are no meteor showers associated with the constellation.

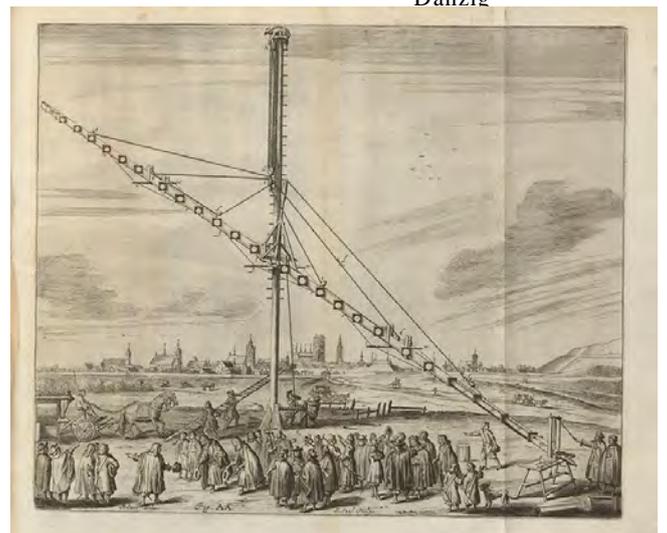
Lacerta belongs to the Perseus family of constellations, along with Andromeda, Auriga, Cassiopeia, Cepheus, Cetus, Pegasus, Perseus and Triangulum.



Lacerta can be seen on the left of this 1825 star map from *Urania's Mirror*



Johannes Hevelius (1611-1687) was an Astronomer in the Polish city of Danzig



Woodcut of Hevelius' 46 m (150 ft) focal-length telescope