Admire the moment millions of new stars are born in the Lupus 3 nebula

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Taken with the Dark Energy Camera system, the image shows both the dark cloud of Lupus 3 and the bright young stars of the Bernes 149 nebula appearing extremely clear. The dark cloud here is in fact an extremely important and necessary ingredient for star formation. Put simply, it is the collection of gas and dust that provides the 'fuel' for newly born stars. Lupus 3 is known as a dark nebula because of its dense density, which can obscure the light of the stars behind, giving the impression of a 'black silk' band spreading across the starry sky.

In addition to Lupus, there is another nebula shown in the image, which is Bernes 149. This type of nebula is called a reflection nebula, which is also essentially a cloud of dust and gas, but lighter than a dark nebula. Instead of blocking light from stars, this type of nebula can reflect light, making the cloud appear as luminous as usual. Unlike emission nebulae, in which gas actually glows due to ionization, reflection nebulae do not produce light on their own but still reflect enough light for humans to see.

In the nebula, you can see bright spots that are young stars. Right in the center of the image are two close stars, named HR 5999 and HR 6000, which are blue because they're so small. They are only 1 million years old and are not old enough or old enough for nuclear fusion to occur in their cores. That means they are not main-

sequence stars yet, but are instead stars in the luminous region, as the strong gravity compresses the matter inside, causing it to heat up.

When stars are born and young, they create powerful stellar winds that blow away dust and gas around them. This would prevent more stars from being born nearby, creating an equilibrium to keep the number of new stars born at a reasonable level. Studying star-forming sites like these nebulae can help astronomers learn more about the formation process and early stages of a star's life.