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Cainism and Siblicide

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Cainism and Siblicide

June 18th, 2013, 9:49 pm

Definition "Cainism", "Siblicide" and "Brood Reduction":

Translated from the German Wikipedia article about **Kainismus**:

<http://de.wikipedia.org/wiki/Kainismus>

The term "cainism" in ornithology describes the killing of a younger sibling by an older. The name is based on the Old Testament story of the fratricide between Cain and Abel.

The use of the term in the ornithological literature is not uniform. Many authors refer to any killing of siblings as cainism. More specifically the term is used only for those species in which the killing is inborn. To distinguish the latter species from the other, hence the term mandatory/obligatory cainism is often used.

The killing is done by pushing away from food and / or by direct attacks. Usually the dead body is not eaten, but it is often fed by the parent birds. While with many species of birds the nest killing of siblings during malnutrition is common, the act of killing is independent of the food situation in species with obligatory cainism. Mandatory cainism is similar to the inherent nest clearing behaviour of the Cuckoo and can be also triggered experimentally, for example by presenting a white cloth ball to the young bird. The attacks of the older towards the younger siblings usually begin with the day of hatching of the latter. Most of the younger birds survive only a few days. The parents do not hamper these attacks, it has been repeatedly observed that the older young bird continued his attacks even when a parent bird would feed him. The roles of "Cain" and "Abel" are determined solely by the sequence of hatch, in experimental

transposition of "Abel" to a younger sibling, this "Abel" immediately took over the role of "Cain" and attacked the younger nestling. In further experiments on Verreaux's eagle eagles, the aggressiveness of the siblings lasted at least until the completion of the major plumage growth. The nest of the species with obligatory cainism usually consists of two eggs. That's why if both eggs hatch, only the older nestling survives.

Siblicide:

<http://en.wikipedia.org/wiki/Siblicide>

Brood Reduction:

<http://www.tulane.edu/~bfleury/birds/bi...ction2.rtf>

According to this document:

- siblicide in raptors is called cainism and 23 species of Falconiformes are known to be siblicidal (Simmons (*) 1988)
- raptors generally lay two eggs, but rarely hatch more than one chick
- the first hatched chick usually kills the second chick
- ...
- Simmons (1988) defines cainism as siblicide in the absence of food shortage
- ...
- the surviving chick should:
 - > fledge at a higher weight
 - > be better able to withstand the period of high juvenile mortality
 - > be better able to compete for limited nesting sites
- ...

(*) Robert Simmons: Offspring quality and the evolution of cainism in: Ibis 130.1988, 4, p. 339-357

(Online available through Wiley Online Library by purchasing or finding an institution with online access: <http://onlinelibrary.wiley.com/doi/10.1...x/abstract>)

More on siblicidal brood reduction:

Siblicidal Brood Reduction: The Prey-Size Hypothesis by Douglas W. Mock in: The American Naturalist 125.1985,3 p. 327-343

(Online available fee-based through JSTOR: <http://www.jstor.org/discover/10.2307/2...2128148813>)

A book to read about this subject would be:

Douglas Mock: More than kin and less than kind : the evolution of family conflict

Belknap Press of Harvard University Press, 2006

ISBN-10: 0674022483

ISBN-13: 978-0674022485

(available through your library, bookstore or Amazon: <http://www.amazon.com/books/dp/0674022483>)



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June 19th, 2013, 7:24 pm

Bird species of which cainism is known to occur:

Obligatory cainism:

Eagles:

Lesser Spotted Eagle (*Aquila pomarina*) Schreiadler

Greater Spotted Eagle (*Aquila clanga*) Schelladler

Golden Eagle (*Aquila chrysaetos*) Steinadler

Verreaux's Eagle, Black Eagle (*Aquila verreauxii*) Kaffernadler

Crowned Eagle (*Stephanoaetus coronatus*) Kronenadler

Wedge-tailed Eagle (*Aquila audax*) Keilschwanzadler

Wahlberg's Eagle (*Aquila wahlbergi*)

Tawny Eagle (*Aquila rapax*) Raubadler

Madagascar Fish Eagle (*Haliaeetus vociferoides*) Madagaskarseeadler (not to be mixed up with *Haliaeetus vocifer*!)

Other raptors:

Augur Buzzard (*Buteo augur*) Augurbussard

Bearded Vulture (*Gypaetus barbatus*) Lämmergeier

Other birds

Birds of the *Sula* genus like:

Nazca Booby (*Sula granti*) Nazkatölpel

Masked Booby (*Sula dactylatra*) Maskentölpel

Brown Booby (*Sula leucogaster*) Weißbauchtölpel

(some members of this species are known for facultative siblicide)

Birds of the *Stercorariidae* family

Whooping cranes (*Grus americana*) - mentioned by D. Mock, pp 54-55, interesting birds in general

(http://en.wikipedia.org/wiki/Whooping_crane)

Facultative cainism

Black Kite (*Milvus migrans*) Schwarzmilan

Black-chested Buzzard-Eagle (*Geranoaetus melanoleucus*) Blaubussard

Long-legged Buzzard (*Buteo rufinus*) Adlerbussard

Eastern Imperial Eagle (*Aquila heliaca*) Östlicher Kaiseradler

Spanish Imperial Eagle, Iberian Imperial Eagle or Adalbert's Eagle (*Aquila adalberti*) Spanischer Kaiseradler

A special place must be awarded to the **Harpie Eagle** (*Harpia harpyja*) Harpyie, which must be one step ahead of the LSE in evolution. The female regularly lays two eggs, but as soon as the first chick hatches, the second egg will be ignored and no longer incubated. Incubation takes about 56 days, the chick fledges with 6 months (!), but parents continue to feed it for another 6 to 10 months.

This lists are not intended to be exhaustive. Additions are welcome!



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📅 June 19th, 2013, 8:53 pm

Papers and articles on cainism

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2. Wendland, Victor: Problem des vorzeitigen Sterbens von jungen Greifvögeln und Eulen. 1958

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3. Sladek, J.: Zum Problem des vorzeitigen Absterbens des zweiten Jungen beim Schreiadler (*Aquila pomarina* BREHM). 1959

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11. Gargett, Valerie: Sibling aggression in the Black Eagle in the Matopos, Rhodesia. 1978

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15. Thaler, Ellen und Helmut Pechlahner: Cainism in the Lammergeier or Bearded Vulture *Gypaetus barbatus aureus* at Innsbruck Alpenzoo. 1980

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21. Simmons, Robert: Offspring quality and the evolution of cainism. 1988

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22. Kanuch, P.: The first photographic evidence of nesting of the Lesser Spotted Eagle (*Aquila pomarina*) with two fledged chicks without human help in Czechoslovakia. 1989

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23. Simmons, Robert: The Cain and Abel riddle in eagles and other birds. 1989

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24. Mock, Douglas W. and Hugh Drummond and Christopher Stinson: Avian siblicide. 1990

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25. Meyburg, B.-U. and Z. Pielowski: Cainism in the Greater Spotted Eagle *Aquila clanga*. 1991

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39. Meyburg, B.-U. and Kai Graszynski / Torsten Langgemach / Paul Sömmer / Ugis Bergmanis: Cainism, nestling management in Germany in 2004-2007 and satellite tracking of juveniles in the Lesser Spotted Eagle (*Aquila pomarina*). 2008

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