

Calculating the Carrying Capacity of the Krisaeon Plain

As a result of the First Sacred War, the Plain of Krisa was consecrated to the god Apollo. Supported by the newly-formed Delphic Amphictyony the priests of Delphi decreed that habitation and agriculture in this area were forbidden, and the remnants of the peoples who had been living in the area were displaced (Aeschin. 3.09; Paus. 10.37.5; Strab. 9.3.). The land was instead made home to livestock destined for sacrifice at the religious complex at Delphi (Isager 1992). The land these herds were raised upon was verdant and potentially highly productive; based on accounts of the subsequent Sacred Wars the territory of Apollo was a prize that was coveted by the inhabitants of central Greece (Diod. 16.23; Plut. Per. 21).

It is not difficult to surmise why the sanctuary of Apollo at Delphi would need a dedicated space to provide sacred animals for its religious operations. Delphi is some 2,000 feet above sea level, even at the best of times the trip along the sacred way to Apollo's sanctuary in the mountains would have been difficult (Paus. 10.5.5; Dillon 1997). For a pilgrim to bring an animal or animals overland to the sanctuary would have significantly impacted travel, even assuming pilgrims had experience driving livestock over significant distances and rough terrain. For those who arrived at Delphi's port of Kirra via ship one could hardly bring a herd of goats or sheep, let alone a hecatomb of cattle from the Ionia or the Chalcidice (McInerney 2010). Instead, it seems most likely that those coming to consult the oracle of Apollo or participate in the Pythian Games purchased their animals from among the herds on the Krisaeon plain.

The number of animals needed by pilgrims for religious activity at Delphi would have been immense. Despite any humble beginnings the sanctuary acquired an "international" character in the eighth century, becoming integral to the fabric of religious life in the Eastern

Mediterranean, attracting supplicants from all over the Hellenic world who sacrificed for the opportunity to consult with Apollo (Eur. Ion 226-229; Howe 2014). The animal needs of the sanctuary would have magnified demand in the sixth century, as Delphi began to host the pan-Hellenic Pythian Games every four years. While we have no hard data for Delphi, it has been estimated that in the fourth century public sacrifices consumed roughly one thousand oxen and three thousand sheep and goats every year (Rosivach 1994). Certainly, this would be at least comparable to the number of sacrifices needed at Delphi, and likely significantly less during the years of the Pythian games. Could the sacred territory of Apollo, some 150 square kilometers (Rousset 2002), supply sufficient animals for this scale of religious sacrifice? Using a variety of modern agricultural, climatic, and animal husbandry data this paper seeks to speculate on the carrying capacity of the area that modern scholarship understands to be the Krisaeon Plain and the territory of Apollo (Γκουβά and Σακελλαρίου 2011; Hancock 2006; Redfean and Bidwell 2017; Dahl and Hjort 1976). While modern scholarship lacks hard data from contemporary sources, modern sources strongly suggest that the sacred territory alone could not support the needs of pilgrims at Delphi, and an outside source of animals was required to stock the plain consistently with sacrificial animals.

Bibliography

- Dahl, Gudrun, and Anders Hjort. 1976. *Having Herds: Pastoral Herd Growth and Household Economy*. Stockholm Studies in Social Anthropology. Stockholm: University of Stockholm.
- Dillon, Matthew. 1997. *Pilgrims and Pilgrimage in Ancient Greece*. New York: Routledge.

- Hancock, Amanda. 2006. "Doing the Math: Calculating a Sustainable Stocking Rate." 2006. North Dakota State University Agricultural Experiment Station; Central Grasslands Research Extension Center.
<https://www.ag.ndsu.edu/archive/streeter/2006report/aums/Doing%20the%20Math.htm>.
- Howe, Timothy. 2014. "Value Economics: Animals, Wealth, and the Market." In *Oxford Handbook of Animals in Classical Thought and Life*. Oxford: Oxford University Press.
- Isager, Signe. 1992. "Sacred Animals in Classical and Hellenistic Greece." In *Economics of Cult in the Ancient Greek World*, 15–20. Uppsala Studies in Ancient Mediterranean and Near Eastern Civilizations 21. Uppsala: Acta Universitatis Upsaliensis.
- McInerney, Jeremy. 2010. *The Cattle of the Sun: Cows and Culture in the World of the Ancient Greeks*. Princeton: Princeton University Press.
- Redfearn, Daren, and Terrence Bidwell. 2017. "Stocking Rate: The Key to Successful Livestock Production." PSS-2871. Oklahoma State University: Oklahoma Cooperative Extension Service.
<http://www.okrangelandswest.okstate.edu/files/grazing%20management%20pdfs/F-2871web.pdf>.
- Rosivach, Vincent. 1994. *The System of Public Sacrifice in Fourth-Century Athens*. Atlanta: Scholars Press.
- Rousset, Denis. 2002. *Le Territoire de Delphes et La Terre D'Apollon*. Paris: De Boccard édition-diffusion.
- Γκουβιά, Μάρκου, and Νικόλαου Σακελλαρίου. 2011. "ΚΛΙΜΑ ΚΑΙ ΔΑΣΙΚΗ ΒΛΑΣΤΗΣΗ ΤΗΣ ΕΛΛΑΔΑΣ." *ΤΕΧΝΙΚΗ ΒΙΒΛΙΟΘΗΚΗ 1. ΑΘΗΝΑ: ΕΘΝΙΚΟ*

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