Rangeland Ecology & Management xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Rangeland Ecology & Management

journal homepage: http://www.elsevier.com/locate/rama

Transhumance as Antidote for Modern Sedentary Stock Raising☆

P.F. Starrs *

Regents & Foundation Distinguished Professor of Geography at the University of Nevada, Reno, NV 89557, USA

ARTICLE INFO

Article history:
Received 15 March 2017
Received in revised form 23 April 2018
Accepted 26 April 2018
Available online xxxx

Key Words:
American West
cañadas
common property resources
ecosystem services
Spain
stock driveways
transhumance

ABSTRACT

Few grazing themes so endure yet are so difficult for outsiders to document with certainty as historical and current-day livestock grazing routes: stock driveways. Excursions from one biome, ecotone, or landscape to another —in general, undertaken to seasonal cues — allow livestock owners and their hired herders to exploit different environments that offer notable advantages in terms of freeing livestock from unvarying diet, overtaxed grazing grounds, common diseases, and cycles of drought or drenching rain. Movement at whatever scale permits herders or shepherds an escape from monotony when they shift grazing grounds to montane-woodlands or back to lowland environments in travel that benefits both jaded humans and husbanded animals. Significant economic and ecological advantages accrue from the shifts of seasonal silvopastoralism, but the terrain, and in particular the routes animals travel, often stretch across varied land ownerships, and sifting out rights of passage is an ethnographic adventure requiring longstanding observation and consistent fieldwork. Formal scholarship about the road between is less established than literature of "the trail," which is a staple feature of folklore, film, and fiction. As concern grows about the energy costs of using highways or railroads to move livestock, attention returns to traditional practices and legal accommodations that make possible trailing livestock under their own power. Across Europe are 4 million ha of land associated with livestock driveways, once widespread in the United States as an item of Spanish-Mexican heritage. This synthesis focuses on livestock driveway establishment in two landscapes: Spain and, secondarily, the western United States of America, with an overarching theme of how stock driveways can connect ecosystems and, by sustaining customary use, knit together silvopastoral society.

Transhumance and Scale

Transhumance employs livestock driveways to move domesticated animals in an efficient seasonal use of geographically distinct ecological zones (Gómez-Ibañez, 1977; Huntsinger & Bartolome, 2014; Netting, 1981; Rinschede, 1984, 1988; Rodríguez Pascual, 2001). Long one-way drives that move livestock to market are a separate kind of movement, although an historically important one in US ranching and livestock-raising history (Fig. 1).

The term "byway" in American or British English speaks to something apart from the transportation mainstream. Conventionally, the term is contrasted with "highway," which would serve as a main road or human transit route (Moor, 2016). An element of silvopastoral life is exploitation of different fodder sources as those become available through the year. Getting to those pastures and highlands is another matter, requiring access, permission, and, often, negotiation. Transit routes—stock driveways—are essential, if not always guaranteed, a reflection of the complicated element of political ecology as it influences routes and access across landscapes. Transportation by rail or truck is costly in fuel and carbon footprint, and it squanders potential advantages. Scale can vary from local to regional transhumance, and the most ambitious view could track a seasonal movement of livestock across ≥ 1 000 km. Today, landscape structure and management intensity meet, as mobility intersects with ownership and flexibility (Plieninger et al., 2015; Tieskens et al., 2017).

In earlier times, trails forged by migrating wildlife provided routes that humans and domesticated stock would later locate and travel. The sequential use of gaps and defiles by wildlife, venturesome humans, and eventually herders was common, with the Cumberland Gap and Avila's Puerto del Pico (Spain) famously two such cases (Vance, 1986; Vicente & Alés, 2006). Even in twenty-first century vernacular speech, the varied descriptive terms applied to animal movement routes reflect a long and, indeed, global human history of livestock trailing.

Range landscapes come in diverse forms and uses: Ecology can describe the environments used, but it is access to these realms and control of them that forcefully calls in an analysis of management and animal ethology because behavior and tradition are important in trailing animals

☆ This research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors. Significant inroads were made, however, while the author was a Visiting Scholar in Madrid, Spain, at the Institute of Politics & Public Goods in the Center for Human and Social Sciences, CSIC.

* Correspondence: Dr P. F. Starrs, Geography: MS 0154, University of Nevada, Reno, NV 89557, USA.
E-mail address: starrs@unr.edu.

https://doi.org/10.1016/j.rama.2018.04.011
1550-7424/

Please cite this article as: Starrs, PF., Transhumance as Antidote for Modern Sedentary Stock Raising, Rangeland Ecology & Management (2018), https://doi.org/10.1016/j.rama.2018.04.011

Figure 1. This photograph, familiar to members of the Society for Range Management, shows a Texas trail herd moving along 1 of the 11 main trail routes north that were established in the post—Civil War years. (Credit: Erwin E. Smith [1886–1947], Matador Trail Herd on the Move, Texas; 1909–1910. Gelatin dry plate negative; Erwin E. Smith Collection of the Library of Congress on Deposit at the Amon Carter Museum of Art, Fort Worth, TX; LC.S6.151).

(Squires, 1981). In livestock movements, scale is a crucial feature. Ranchers and pastoralists and herders and shepherds and drovers have long moved animals locally, from lowland to highland, or even across hundreds of kilometers of distance to find forage seasonally in a spectrum of rangelands from deserts to forests, providing varied grazing grounds in diverse ecosystems (Moreno & Pulido, 2009). Traditionally, wooded rangelands in many parts of the world were part of such interconnected grazing landscapes—silvopastoralism, in short.

Scale, access, ownership, labor, and tradition each feature in an examination of livestock driveways. As geographer Nathan Sayre reminds us in introducing his 2017 work looking at rangeland science in the United States, "I seek to integrate ecological … and geographical … notions of scale and to illuminate how scale is always already political *and* scientific, epistemological *and* ontological, socially produced and historically contingent *and* biophysically conditioned" (Sayre, 2017, p 24). That affirmation, if long on theory and more suggestive than explicit, opens the door to a discussion of scale and applies it to two circumstances: stock driveways in the United States over the past 200 yr and, in a marked but illuminating contrast, transhumance in a European context, examining in particular long-distance grazing movements in Spain, with a history of easily 3 000 yr (Aitken, 1947; Guzmán Álvarez, 2016; Manzano & Casas, 2010; Rodríguez Pascual, 2001; Terán, 1947).

The contrast between open-range livestock raising and today's concentrated animal feeding operations or factory farming is understood by the meat-eating public, and livestock ranching is especially subject to the results. Nutritional and economic choice that distinguishes between grass-fed beef and feedlot-fattened animals captures a complicated divergence. Why is transhumance so invisible in twenty-first century American livestock culture compared with its persistence in European, Latin American, North African, Near Eastern, and Central and East Asian life?

Historical Observations on Transhumance Livestock Driveways

For the European setting—and no less so in other environments, including those often used by indigenous populations in Asia and the western hemisphere—the trailing of livestock along extensive driveways is a practice with historically long-standing roots (Fig. 2). If there is a single key, it is attention to the functions—ecological, economic, and traditional—of landscape as a feature of cultural importance (Grove & Rackham, 2001; Parsons, 1962; Plieninger et al., 2006; Plieninger & Wilbrand, 2001). An implicit take-home lesson is simple: moving livestock over defined trails to alternative pastures offers advantages to herders, livestock owners, and animals themselves. It is noteworthy and peculiar that in the American West, widespread transhumance on stock driveways of sheep and cattle was federally protected for < 100 yr, tapering off by the 1970s with changes in federal land policy and jurisdiction, a narrative so far poorly told. While transhumance in the American West of 2018 is reasonably common, it rarely takes place on set-aside and protected public land stock driveways.

For Europe, evidence of transhumance turns out to have a deep, documentable, and with new details, a still-developing history (Blondel, 2006; Geddes, 1983). In 2012, Albert Hafner of the University of Bern (Switzerland) described a variety of archeological finds located over a decade in melting glacial environments on passes from 2 000 to 3 000 m in the Austrian-Italian Alps (Hafner, 2012). The conclusions drawn from the evidence are notable: "Taken as a whole, the artifacts indicate that the alpine passes, when they were open, were traversed often by herders and hunters. As far back as 7 000 yr ago, people who lived in the lower valleys were bringing their goats and sheep to graze in high-elevation fields for days or weeks at a time" (Burdick, 2017). Alan Burdick's discussion adds, "whatever one calls them, by 4 000 yr ago these grazing movements enabled early commuters to transform the alpine environment into their workplace. The grazing gradually lowered the [upper] tree line, converting forests to meadows and setting in motion wider changes that, a few millennia later, would make the impact discernible to scientists." An organized European transhumance was ongoing 5 000 yr BCE. There is similar evidence, though dated with less certainty, of seasonal human movements into high-montane environments of the American West (Thomas, 2014), the Andes (Easdale et al., 2016; Stewart et al., 1976), Africa (Turner, 1999), and climbing to dizzying heights of the Qinghai Plateau, Tibet, and Himalaya (Inamura, 1995).

Spanish Setting

Although the doctrine of efficiency often seems to govern discussions at the planning and policy level for the European Union and other developed countries that seek to hasten movement and increase productivity, traditional systems of production include time-tested

Please cite this article as: Starrs, PF., Transhumance as Antidote for Modern Sedentary Stock Raising, Rangeland Ecology & Management (2018), https://doi.org/10.1016/j.rama.2018.04.011