

Environment and Sex Ratios Among Alaska Natives: An Historical Perspective

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Human-environment interactions can affect the sex ratios of resource-dependent societies in a variety of ways. Historical and contemporary data on Alaska Native populations illustrate such effects. Some eighteenth and early nineteenth century observers noted an excess of females, which they attributed to high mortality among hunters. Population counts in the later nineteenth century and well into the twentieth found instead an excess of men in many communities. Female infanticide was credited as the explanation: since family survival depended upon hunting success, males were more valued. Although infanticide explanations for the excess of males have been widely believed, available demographic data point to something else: higher adult female mortality. Finally, in the postwar years, the importance of mortality differentials seems to have faded—and also changed direction. Female outmigration from villages accounts for much of the gender imbalance among Native populations today. Natural-resource development, particularly North Slope oil, indirectly drives this migration. In Alaska's transcultural communities, the present gender imbalances raise issues of individual and cultural survival.

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INTRODUCTION

Linkages are often seen between environment and basic demographic variables—birth rate, death rate, and migration flow. In this article we direct attention to some ways in which environmental variables can also have *gender-specific* effects on deaths and migration. Such effects alter a society's male-female balance, influencing both the life chances of individuals and the viability of their communities.

Our analysis here concentrates on Alaska, but the patterns we describe appear to be more general. Gender imbalances due to migration or mortality have been reported in many societies, from Ireland (Messenger, 1969; Scheper-Hughes, 1979) to China (Tuljapurkar, Li & Feldman, 1995). Recent surveys found differences between the migration expectations of young men and women in rural Scotland (Seyfrit & Hamilton, 1992a), Alaska (Hamilton & Seyfrit, 1993a) and Newfoundland (Hamilton & Seyfrit, 1994a). Gender-balance patterns resembling Alaska's appear also in Greenland, both in contemporary population data (Hamilton, Rasmussen, Flanders & Seyfrit, 1996) and in historical reports (see notes in Taylor, 1966, pp. 217–218). Jentoft (1993) describes female outmigration from contemporary Norwegian fishing communities. Informally, we have heard accounts of similar phenomena in other places including Iceland, Siberia and the South Pacific. The details of how gender balance varies with changing environmental and social conditions differ from place to place, however, and deserve individual study.¹

ALASKA'S NATIVE POPULATION

Alaska's indigenous people are Eskimo, Indian, or Aleut. The term Eskimo is sometimes rejected as pejorative, in the belief that it originates from a proto-Algonquian expression meaning "eaters of raw flesh." Many prefer the self-designation of Inuit ("people") instead. Inuit, however, properly refers to one cultural/linguistic group spanning northern Alaska, the Canadian Arctic and Labrador coasts, and Greenland. Some speakers of Yupik ("real people"), a second major linguistic group found in west and southwest Alaska (with affinities to Siberia), would rather be called Eskimo than Inuit. Furthermore, recent scholarship suggests that the word Eskimo actually has less pejorative roots, not in Algonquian but in a Montagnais expression meaning "snowshoe netter" (Damas, 1984, pp. 6). Today the Alaska Federation of Natives, among others, views Eskimo as a neutral term covering both Inuit and Yupik peoples.

Writers in Alaska employ capital-N "Native" as a designation encompassing Eskimos, Indians, and Aleuts. This allows use of small-n "native" as a term for anyone born in Alaska. In other U.S. states, the term Native American may be preferred over Indian since the latter arose from Columbus's geographical confusion. In Alaska, however, the term Indian (covering Athabaska, Tlingit, Haida, etc., but not Eskimo or Aleut) remains useful. Native Americans from other states, some of whom move to Alaska, may be identified by Alaska Natives as "outside Indians."

More than two thirds of Alaska's 86,000 Natives presently live in the small and often remote communities of the Alaskan bush. Elements of traditional culture, including language, persist there alongside newer Native institutions and the heavy presence of dominant U.S. culture. As recently as the 1960s, many villagers of northwest Alaska endured bitter Arctic winters in frozen sod huts, much as their ancestors had.² Today most dwell in warmer prefabricated houses and schools, although a few still hunt the bowhead whale. Children in some village schools of southwest Alaska begin their schooling speaking Yupik, and switch to English only after third grade. In small villages throughout the state, subsistence hunting and fishing may contribute up to half of the food supply (Jorgensen, 1990).

Despite the appeal of traditional culture, the otherwise limited job, life and recreational choices inspire many young people to leave Native villages. But a large fraction of leavers later return, after finding that city life suits them less well. Native students who drop out from the University of Alaska at Fairbanks, or from Mount Edgecumbe High School (a predominantly Native boarding school in southeast Alaska), often cite homesickness as their reason. Bush villages thus continue to play a central role in the survival of Alaska Native culture, and provide a home for Natives who wish to stay close to their culture—facts recognized by Native and non-Native leaders alike.

Although they help keep traditional culture alive, bush villages are nonetheless experiencing a period of rapid social change. Resource-based industry—forestry, fishing, mining, and especially oil—has been the principal force behind this change, bringing into the bush waves of money, people and infrastructure. With these have come other changes in economy, housing, government, education, transportation and the advent of satellite T.V. Recent books survey the cultural impacts of such change (Chance, 1990; Condon, 1987; Duffy, 1988; Fienup-Riordan, 1990; Jorgensen, 1990; Kizzia, 1991; Oswalt, 1990).

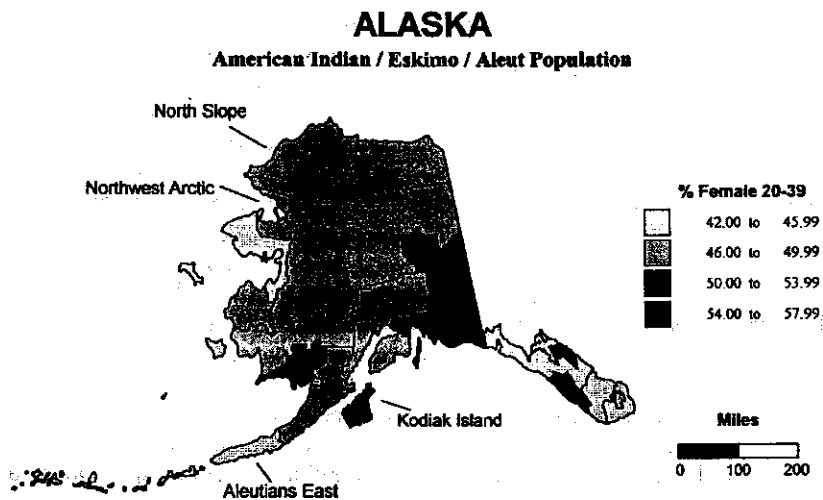
Since 1991 we have been conducting research on how resource development affects adolescents in bush Alaska. Surveys and discussions with high school students soon directed our attention towards migration as a

key variable, and in particular, towards the ways in which gender differences in outmigration were changing the demographic profile of bush villages (Seyfrit & Hamilton, 1992b; Hamilton & Seyfrit, 1993a; 1993b; 1994b).

Figure 1 displays the statewide gender balance among 20–39 year old Natives in 1990. The darkest-shaded (at least 54% female) boroughs hold Alaska's two largest cities, Anchorage and Fairbanks. Other boroughs with more women than men include the remaining population or fishing centers: Juneau, Sitka, Valdez, Kodiak and Bristol Bay. Elsewhere, throughout most of bush Alaska, young adult Native populations contain fewer women than men. The labels in Figure 1 identify several areas mentioned later in this article.

Previous writings present more detailed cross-sectional analysis of the contemporary Alaskan population (Hamilton & Seyfrit, 1993b; 1994b), and also that of Greenland (Hamilton et al., 1996). This article takes an historical view instead, to look at demographic changes over a period during which an essentially neolithic culture became what Jorgensen (1990) called "oil age Eskimos." Gender imbalances have been common in Alaska Native villages over the past two centuries. The direction of imbalances has changed, however, in response to changing interactions between society and the physical environment.

FIGURE 1. Map of Alaska shaded to indicate percent female among Natives 20 to 39 years old in each borough, 1990.



HISTORICAL BACKGROUND

We began our historical investigation expecting to find that current Native gender imbalances represent a departure from some previous equilibrium state. The more complicated story we found instead confirms the accuracy of Igor Krupnik's (1993, pp. 225) observation:

In an environment that changes so regularly and radically as the Arctic, an equilibrium between humans and their environment is effectively impossible.

Shifting gender balance has characterized Native populations at least as far back as population data exist.

Eighteenth and early nineteenth century population estimates for the Aleutian Islands consistently noted more females than males, a difference attributed to higher mortality among hunters. Men performed most hunting, risking accidents in boats, on the ice, during cross-country travel or from encounters with bears. Ivan Veniaminov, for example, reported the 1834 population of Unalaska District in the eastern Aleutians as 681 males and 832 females—about 55% female (cited in Lantis, 1984, pp. 164). Today, males continue to suffer disproportionately high mortality from accidents, violence and other modern hazards as well as hunting (Middaugh et al., 1991). From birth and death rates alone, one might therefore expect females should be more numerous, but that is not the case. In 1990 the Aleutians East Borough (see Figure 1) contained 580 male and 462 female Natives—only 44% female.

When and why did this shift occur? Late nineteenth century counts from 18 communities show a preponderance of males among Natives in all but one (Figure 2). Selective infanticide was commonly blamed for the excess of males, an explanation popular well into the 1950s (Milan, 1964, pp. 25–27). Krupnik (1993, pp. 224) remarks:

To judge by the shelves of anthropological literature on the subject, infanticide would seem to be *the* focal point of indigenous 'Arctic demography.'

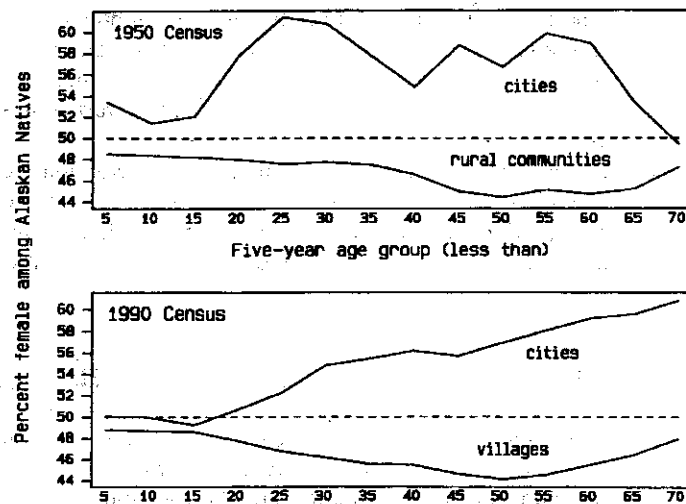
Insofar as family survival depended upon hunting success, males might be more valued—particularly during hard times. Thus many observers concluded that female infanticide, supposedly a survival adaptation to the harsh environment, gave rise to the excess of men. Others questioned

fact that we do not reflect disproportionate female out-of-state migration. Furthermore, even within the state, the overall balance masks two opposite patterns: a predominance of males in small villages, and a predominance of females among the Native populations of Alaska's cities (evident in Figure 1; more detailed analysis in Hamilton & Seyfrit, 1994b). Figure 4 shows these patterns graphically, at bottom showing 1990 Census data on Alaskan villages (under 1,000 people, lower curve) and cities (over 10,000 people, upper curve). Towns of 1,000 to 10,000 people, omitted from the 1990 graph in Figure 4, follow a pattern intermediate between those of villages and cities.

A similar pattern was evident in the 1950 Census, shown in the top graph of Figure 4.³ (The 1950 Census category of "rural communities" corresponds roughly to our 1990 category of "villages.") The population of Natives living in cities in 1950 was much smaller, however. Disproportionately female migration from Alaskan villages to towns, cities and even out of the state has shaped the present demographic picture.

During our research with high school students and graduates in Inuit and Yupik towns and villages, we found consistent gender differences regarding migration (Hamilton & Seyfrit, 1993a; 1993b). Among students, girls more often expected to leave their rural region after graduating.

FIGURE 4. Percent female by five-year age groups and place of residence in 1950 (top) and 1990.



Among graduates, more women than men actually had moved away. Respondents' discussion of these findings brought out divergent perceptions about the attractions of village and city. Males often described the bush, with its hunting, fishing, and "easy living," as most attractive. Females were more likely to mention urban career goals, or to bring up unpleasant aspects of village life such as alcoholism or the limited choices for women. Both sexes seemed to expect females to perform better in school and college, which would give women access to a wider spectrum of job opportunities. Adolescents seldom mentioned to us another prominent aspect of outmigration: Native women are about equally likely to marry Native or non-Native men, and in the latter case, they often eventually move away. Fewer Native men marry non-Natives; this asymmetry leaves a fraction of Native men unmarried, and living in communities with a shortage of potential partners.

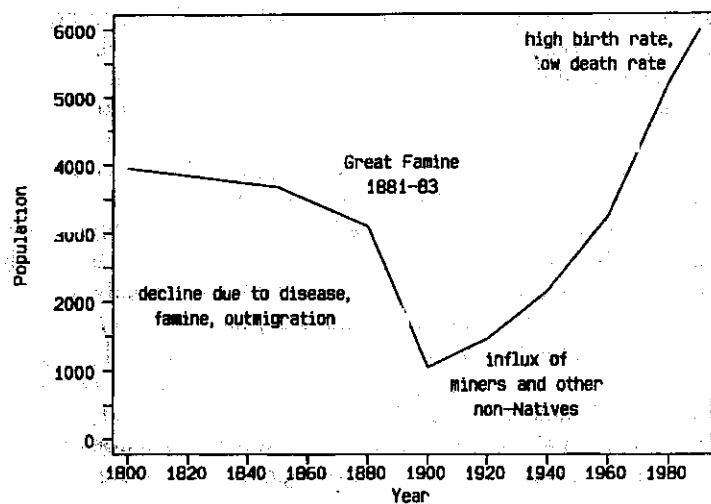
As Figure 4 indicates, adult Native populations in small Alaskan villages tend to be majority male, and adult Native populations in Alaskan cities tend to be majority female. Bush regions such as the North Slope typically include both a scatter of majority-male villages and a hub town (and local migration destination) with at least a slight preponderance of women. The 1990 Census figures appear consistent with a net outmigration equivalent to at least 9% of Alaska's current 20-39 year old Native female population. Such movement has implications for individual, community, and cultural survival: rural villages become less viable, and more prone to health and social problems, when they contain a large fraction of unmarried young men.⁴

The following sections look at the historical population trends of several specific communities.

TRENDS IN POPULATIONS OF TOWNS AND VILLAGES

Figure 5 traces the population history of Alaska's Kotzebue Sound region, a primarily Inupiat (Alaskan Inuit) area today organized as the Northwest Arctic Borough—ten villages (with populations ranging from 90 to 650) plus the hub town of Kotzebue (population about 3,000; data from Burch, 1984, p. 316 and the U.S. Census). The nineteenth century appears grim. Population declined about 75% as a result of European diseases; migration, particularly toward Norton Sound (after 1840-50) or the Arctic coast (1880s); and hunger, notably the Great Famine of 1881-83. Demographic recovery began in the early twentieth century, as the food supply stabilized and non-Natives, mainly miners, started moving in (Burch,

FIGURE 5. Population of the Kotzebue Sound district, 1800–1990.

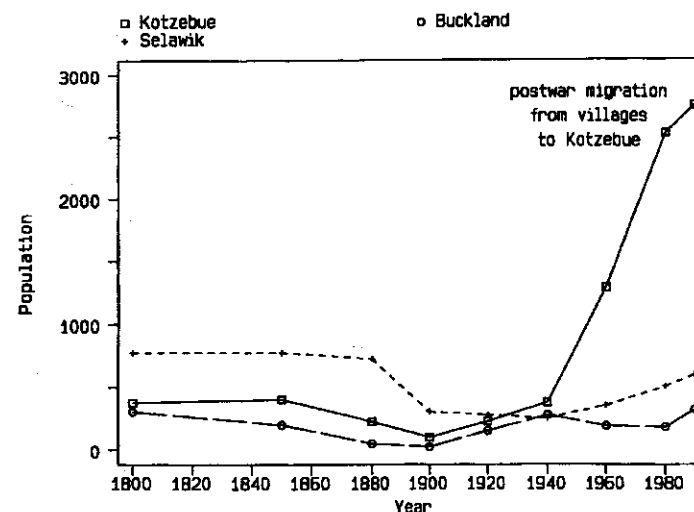


1984). Falling death rates as health care improved, combined with a high birth rate, contributed to rapid natural growth that supplemented in-migration during the postwar period. Similar trends of nineteenth century collapse followed by twentieth century growth characterize many Alaska Native populations. The examples of Gambell, Unalakleet, and Wainwright appear in Jorgensen (1990).

The explosive twentieth century growth did not occur evenly throughout Kotzebue Sound communities. Figure 6 graphs population separately for the hub town of Kotzebue and two of the larger villages, Buckland and Selawik. In the nineteenth century Kotzebue was just another village, but after World War II its importance grew as the region's government, transportation, and commercial hub. Kotzebue's expansion drew many outsiders, but also many Kotzebue Sound Natives from other villages. Even in 1990 Kotzebue's population was 75% Native, most of them Inupiat born in this region.

People moving to Kotzebue from the surrounding villages have been disproportionately women. About 51% of Kotzebue's young adult Natives are female, whereas males predominate in most of the villages. Kotzebue offers a broad range of jobs and opportunities not available in villages, which makes it an attractive migration destination—and one not too far from family remaining in the villages. At the same time, however, Kotzebue is a migration source with respect to larger cities such as Fairbanks or

FIGURE 6. Population of Kotzebue, Buckland and Selawik, 1800–1990.



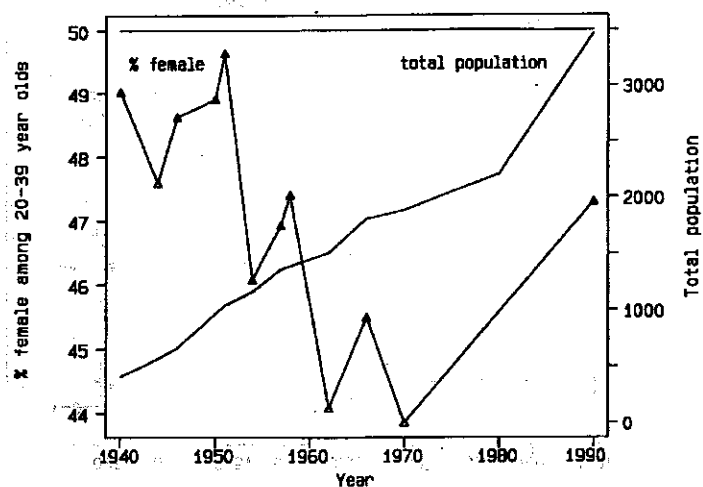
Anchorage. Again, that migration flow includes more women than men, keeping Kotzebue's current excess of women below what it otherwise might be. Put simply, some village women moved to Kotzebue, while some Kotzebue women moved to Anchorage or Fairbanks.

TRENDS IN PERCENT FEMALE

Barrow, like Kotzebue, is the hub town for a large rural Alaskan region. Figure 7 graphs the percent female among Barrow's population over 1940–1990 (adapted from data given by Masnick and Katz, 1976, and the U.S. Census). Also like Kotzebue, Barrow's total population grew more than sevenfold since 1940, while still remaining majority-Native (64%). Such changes require in-migration of many Natives as well as outsiders. Barrow's growth has been particularly steep in the wake of North Slope oil development (after 1968) and the public-sector expansion that it financed.

Over 1950–1970, as Barrow's total population went up, the percentage of women among its young adult population went down. Figure 7 refers to all ethnic groups combined, so an unknown fraction of this change results from the influx of non-Native men, as well as outmigration of Native women. But during the peak years of pipeline construction, while

FIGURE 7. Total population (right scale) and percent female among young adults in Barrow, 1940–1990.



outsider men streamed in and Barrow grew the fastest, the percent female actually climbed. Among young adult Natives (not shown in Figure 7), there were by 1990 slightly more women than men—almost the only North Slope community for which this is true. Thus Barrow had become a migration destination, with respect to smaller villages, as oil revenues transformed its economy. We suspect that expansion of public sector employment played an important role, since these jobs (apart from construction) often go to women.

As the hub town serving an area with North America's largest oilfield, Barrow plainly presents an exceptional case. Many rural Alaskan communities, lacking such valuable resources, have experienced longterm population loss rather than gains. One example, the Kodiak Island village of Karluk, was studied in detail by Taylor (1966): This village, one of seven Konyag Eskimo communities on Kodiak, is today less than one-third of its earlier size. Figure 8, derived from Taylor's data, shows the population of Karluk village over 1890–1990. It also shows the percent female among total population—first, of all Konyag Eskimos, then later of Karluk village in particular—over 1795–1990.

Taylor sought explanations for the shortage of females, which became statistically significant by 1946. (During parts of the nineteenth

century, there was a significant shortage of males instead.) This female shortage was not peculiar to Karluk; the seven Konyag Eskimo villages on Kodiak ranged from 48% to 36% female in 1961. Taylor's demographic analysis allowed him to rule out differential mortality (including infanticide), and also in-migration of men, as explanations for Karluk's imbalance. Rather, he found that significantly more women than men left Karluk during 1946–1962. Reasons for this outmigration were (1) a scarcity of employment opportunities for women in the village, and more importantly (2) marriage of Karluk women to non-Karluk men, especially whites (Taylor, 1966, p. 219). More recent census data indicate that the female exodus from Karluk has continued since Taylor's study, as has the general population decline. Some of the women leaving Karluk village simply moved elsewhere on Kodiak Island, where more opportunities are available for them.

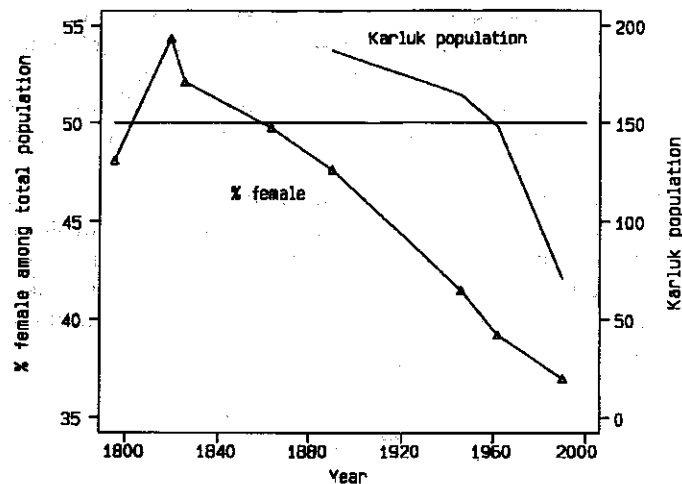
DISCUSSION

Data presented in this article put the gender imbalances of modern Arctic villages into broader historical perspective. Unfortunately our historical data do not include complete age-sex-ethnicity breakdowns for every community, comparable to data we have from the 1990 Census. Other limitations of the historical analysis result from changes in communities (some have vanished, appeared, or moved over the periods discussed) and shifting ways in which record-keepers treat ethnic identity. Early U.S. censuses counted all Natives as "Indians," for instance. During a period from about 1880 through 1910, "mixed-blood Indians" were counted as a separate ethnic group. Microfilms of some old census records were simply unreadable, and before the advent of the U.S. Census, population estimates in remote areas may involve considerable error. Our conclusions therefore rest to some extent on reading between the lines of available hard data, and could be much further refined.

As Figure 8 makes clear, gender imbalances in either direction are nothing new in Alaskan villages. Historical explanations focused on death rates: either high hunting-accident rates creating an excess of women, or infanticide allegedly creating an excess of men. Data from 1920–1950 show no evidence of infanticide, however, and instead suggest higher mortality among adult females.

After 1950, coinciding with improvements in public health, especially tuberculosis, the statewide gender imbalance among Natives disappeared.

FIGURE 8. Total population (right scale) and percent female among Konyag (before 1880) or Karluk population.



World War II and the Cold War cycled thousands of U.S. servicemen through remote parts of Alaska; some married Native women. At the same time, many Native men were drafted and traveled to places far from home. In the postwar era, a generation of Native youth went away to boarding school for their secondary education. These events and the subsequent economic development widened experiences and opened new doors of mobility to Native populations. Population data show a pattern of large-scale migration from villages to regional centers, and from centers to the cities. For a variety of reasons, longterm migration involved more women than men abandoning village life for larger communities.

During the postwar era, migration replaced mortality as the primary cause of local gender imbalances. Since migration reflects individual decisions, it can respond rapidly to changes in opportunities or economic conditions—such as the oil boom in Barrow. Migration flows should therefore be reversible. The gendered flow from rural villages, however, seems to have had a similar form if not magnitude throughout much of the last 40 or 50 years.

Historical records thus suggest that society-environment interactions have influenced the gender balance of Alaska Native communities in a series of ways:

- Hunting exposed males to a greater likelihood of accidental death.
- Starvation and epidemics (especially post-contact) sharply reduced populations. Tuberculosis, and perhaps other diseases, disproportionately affected women because of their indoors and care-giving roles.
- Natural-resource exploitation drew sudden inflows of non-Natives, mainly men. Some of these non-Natives married Native women.
- Today, Native migration flows reflect socioeconomic opportunities including those created by natural-resource industries and the accompanying public sector expansion.

These details apply to Alaska, but it seems likely that many other societies also experience changes in sex ratios—as they do in size, growth rates, or age structure—due to complex interactions with their physical environment. Sex ratios in turn may affect other social phenomenon, including a range of modern health and social problems not usually perceived as having environmental roots.

ENDNOTES

1. Ethnographers and demographers usually use sex ratios (males/females) to describe the relative abundance of males and females. In small communities, however, and particularly those with few women, sex ratio distributions exhibit outliers and erratic variation that complicates statistical analysis. We therefore have chosen to work instead with a somewhat more stable measure that encodes the same information, the percent female ($100 \times \text{females}/(\text{males} + \text{females})$).
2. Contrary to the popular image, igloos were not a major feature of Alaskan Eskimo housing. They were more characteristic of Inuit along Canada's central Arctic coast, who for part of the year lived or traveled on sea ice.
3. Data for the 1950 graph were smoothed (running means of span 3) before plotting, to reduce erratic variations in the urban curve due to small population base numbers.
4. Non-Native populations, shaped by in-migration from elsewhere, follow a different pattern. These populations tend to be predominantly male even in Alaska's cities, and become much more so in the bush. The surplus of non-Native males helps explain the frequency of Native bride/non-Native groom marriages.

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