Journal of Comparative Psychology
1992, Vol. 106, No. 2, 107–113

0735-7036/92/$3.00

Hearing in Large Mammals: Sound Localization Acuity

anra hircus)

in Cattle (*Bos taurus*) and Goats (*C*

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Sound localization acuity of 3 cattle (*Bos taurus*) and 2 goats (*Capra hircus*) was determined for

nd 18°, respectively. For comparison, thresholds were obtained in the same test averaged 30°

and the large binaural locus cues available to them, it is not unexpected when other factors are considered. Like other poor localizers (both domesticated and nondomesticated), cattle and goats are prey species with their best vision directed throughout nearly the entire horizon. In contrast

[illegible] and the goats have been published elsewhere [illegible]

[illegible] 1983, 1990) [illegible] were placed on movable stands 1 m from the center of an animal's [illegible]

er than either goat at Cattle 100 msec noise burst for the goats. The dog performed bett

every angle tested and its performance did not fall to chance 100

until the speakers were placed at ± azimuth a separation the

localization threshold was 8° which is similar to previ 90

ously reported thresholds for dogs (H. E. Heffner, 1976) and indicates that there was nothing unusual about the room 80

acoustics test procedure or stimuli that would prevent accurate sound localization. 70

Discussion 60

50

0 30 60 90 120 180

localization thresholds of cattle and goats as well

Table along with those of the other two species.

Figure Sound-localization performance of 3 cows in localizing a presented in

Dashed line indicates the 75% correct thres

exception of pigs, hooded mammals are poor localizers. Thus

their rather limited ability to localize sound, but three of the

greater than 60° of separation. At smaller angles the animals

four species tested possess loc

showed good agreement with decreasing performance until the 11.2°

chance performance was reached at 20° of separation for Cow

A and 10° for Cows B and C. The 75%-correct threshold

mean for other surface-dwelling mammals (R. S.

Heffner & Heffner, 1992a). Not all hooded mammals have

poor localization acuity, however. Indeed, the 4.6° threshold

of pigs places it among the most accurate localizers, exceeded

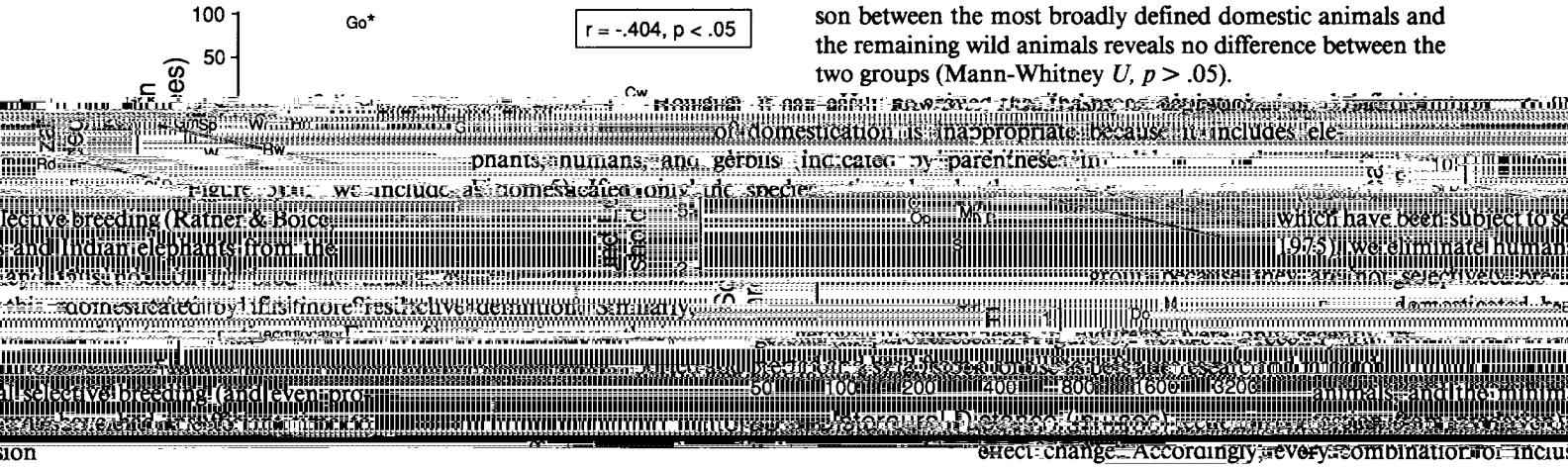

Figure 4. Relation between sound-localization thresholds and interaural distance for large and small domesticated and nondomesticated mammals.

son between the most broadly defined domestic animals and the remaining wild animals reveals no difference between the two groups (Mann-Whitney U, $p > .05$).

A final indication of the lack of effect of domestication on

must be sought elsewhere.

the sound source for further scrutiny and ... the less accurate localizers tend to be prey species, ... the eyes toward ... contrast, most predatory species, such as ... tendency holds true across the entire sample of 24 mammals ... identification. In

e receptive fields and

rason, cotton rat, fera, house mouse, and kangaroo rat. *Journal of the Acoustical Society of America, 68*, 1584–1599.

Hughes, A., & Whitteridge, D. (1973).