

FLOCKING BEHAVIOR IN WINTERING DUNLIN

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ABSTRACT.—This study was undertaken to describe the how of flock structure and movement, hopefully to provide insight into the why of it. Using color-banded birds, positioning and association of individuals were measured. Relative to immatures, adults occurred less often in areas postulated as having a high degree of exposure to avian predation. The social structure was anonymous, with no evidence found of maintained associations between individuals. Movement was based on flushing behavior of and within flocks. Two basic types were defined, uniform flush (continuous propagation) and single point flush (noncontinuous propagation). Measurement of the origin and directions of each flush type in relation to defined positions within flock structure and of their effect on flock density and flight behavior revealed uniform flush to be centripetally based causing coalescing of individuals while single point flush acted centrifugally to cause dispersal. Further correlation revealed initiation and speed of propagation to uniform flush to be directly related to the degree of exposure to avian predation. From this, uniform flush is postulated as being a response to real or imagined danger. From cited literature, single point flush is postulated as being a response to increased food availability. Concept of bonds between birds maintained by visual and acoustic perception is used to discuss the social tendency in Dunlin. Within this framework, elements of uniform flush are shown to strengthen bondage and thereby increase flocking tendencies. Single point flush in contrast acts to weaken bondage and thereby cause the breakdown of flocks. Conclusion is drawn that the evolutionary cause of flocking in Dunlin is predation.

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