

Fig. 1 shows the plots of perpendicular and forward distances for the Passing mode by circumpolar set. All the plots suggest that the model fits the observed data appropriately in general. Fig. 2 shows the plots of perpendicular and forward distances for the Passing mode categorized by circumpolar set and school size class. Figs. 3 and 4 shows the plots of perpendicular and forward distances for the Passing mode by stratum. Although the fit is not good when the sample size is small, the overall fits are generally good.

The plots of perpendicular distances in Fig. 3 sometimes indicate some heaping of observations at zero distance. While the model of Okamura and Kitakado (2008) doesn't have a 'shoulder', the model with $g(0)$ estimation may be robust to the so-called "shape criterion", since $esw = f(0)/g(0)$. In addition, most of the fits do not trace the spiked data overly. The plots of perpendicular and forward distances for the duplicate data correspond to the plots of duplicate success rates as a function of relative position suggested by Skaug (2008). The fits for the duplicate data look good (Figs. 5 and 6). The plots for the upper bridge data did not show any problem (Figs. 7 and 8). Fig. 9 provides the plots for radial distances and sighting angles. We can see some suggestion of fewer sightings at large sighting angle than expected so that there might be room that we are able to improve the fitting by changing the form of detection function.

The plots for observed school sizes also look good fits and do not suggest serious problems.

The whole impression for diagnostic plots is good. Although several plots indicate some departure, the sample size is relatively small in those cases.

REFERENCES

International Whaling Commission (2008) Report of the SOWER Abundance Workshop.

Okamura, H. and Kitakado, T. (2008) Abundance estimates of Antarctic minke whales from the historical IDCR/SOWER survey data using the OK method. Paper SC/60/IA8 presented to the IWC/SC (unpublished).

Skaug, H. (2008) Diagnostics used for NA minke whales. Paper SC/F08/A10 presented to the SOWER Abundance Workshop (unpublished).

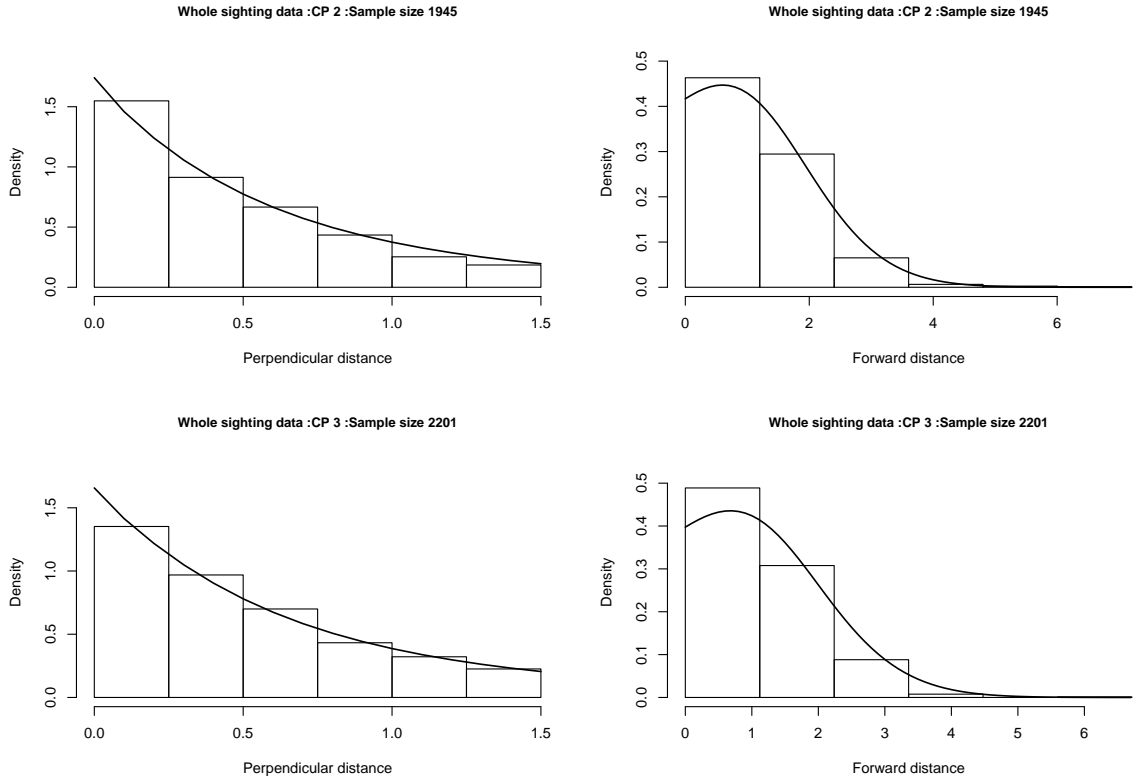


Figure 1. The plots of perpendicular and forward distances (n.miles) in the Passing mode in CPII and CPIII. The histograms denote the observation and the solid lines denote the fitted values.

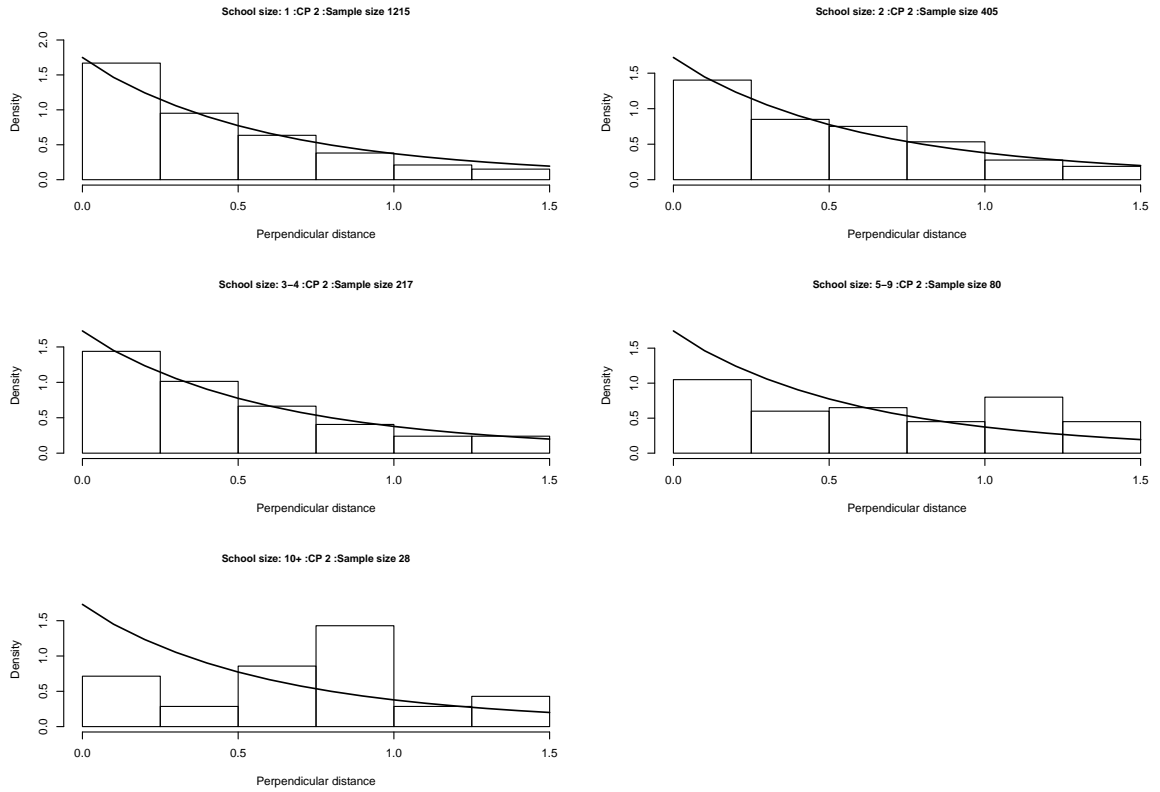


Figure 2. a) The plots of perpendicular distances (n.miles) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

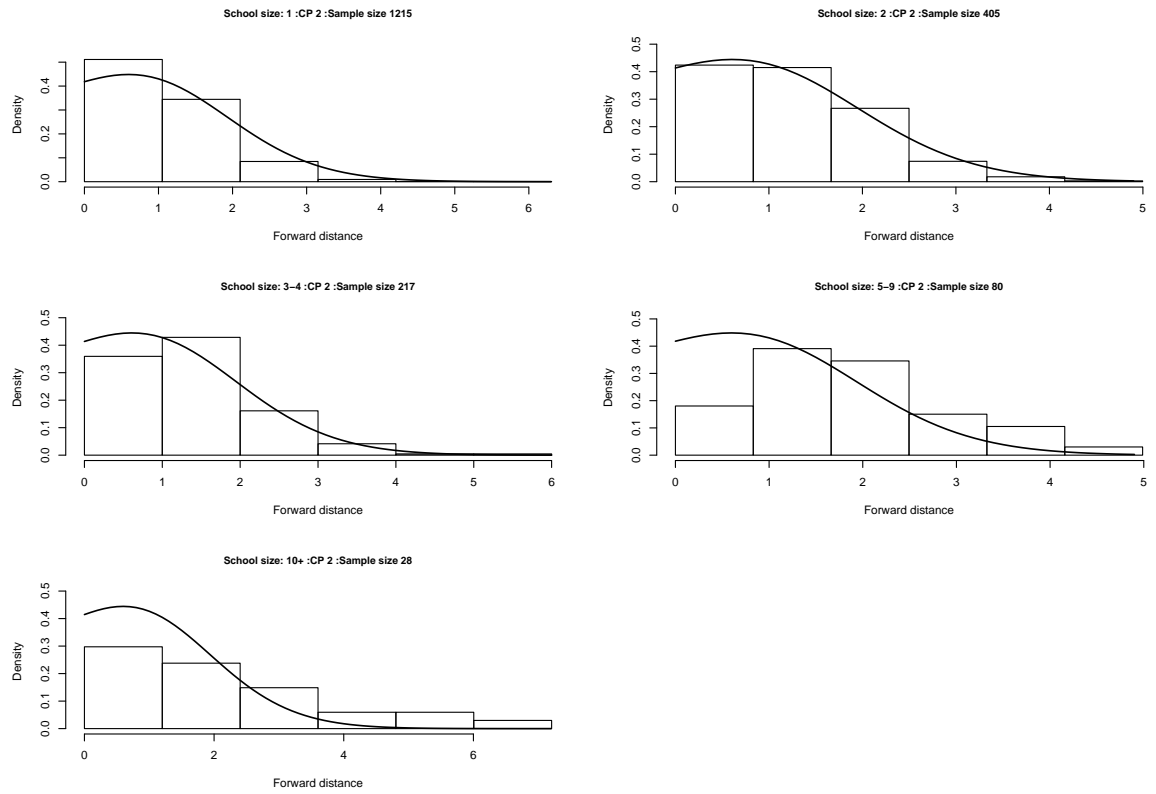


Figure 2. b) The plots of forward distances (n.miles) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

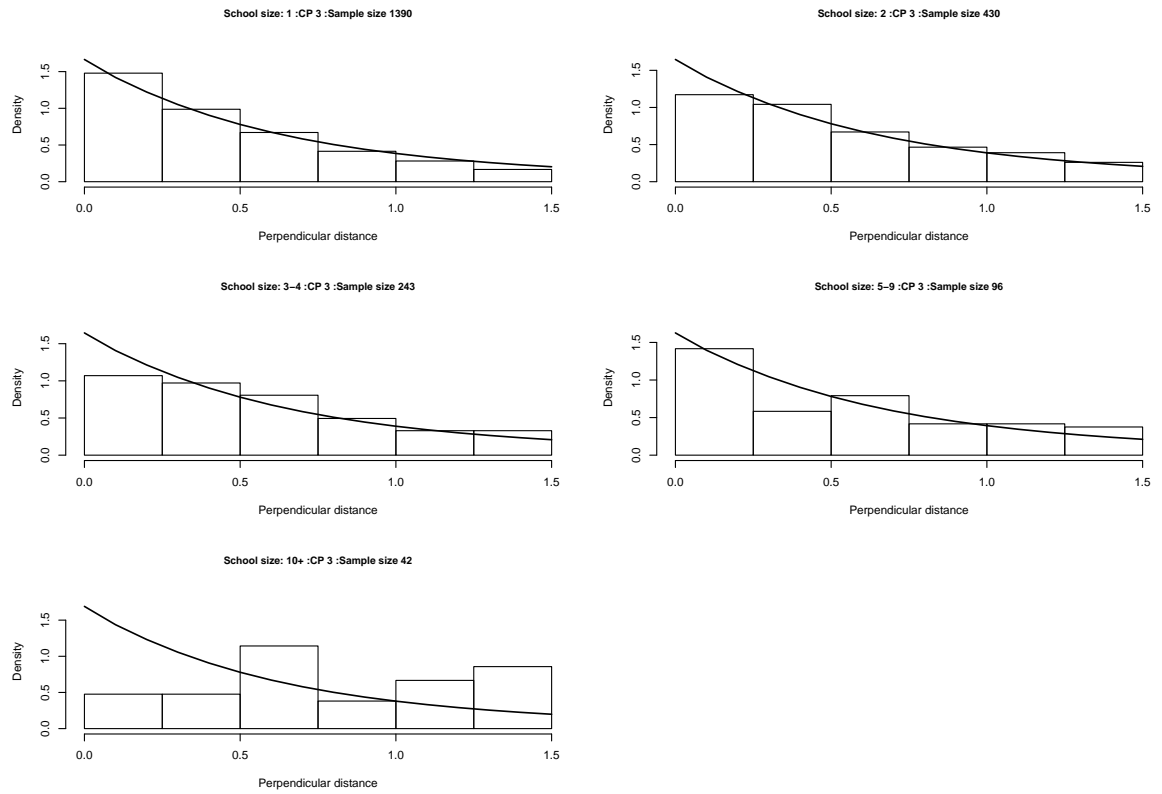


Figure 2. c) The plots of perpendicular distances (n.miles) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPIII. The histograms denote the observation and the solid lines denote the fitted values.

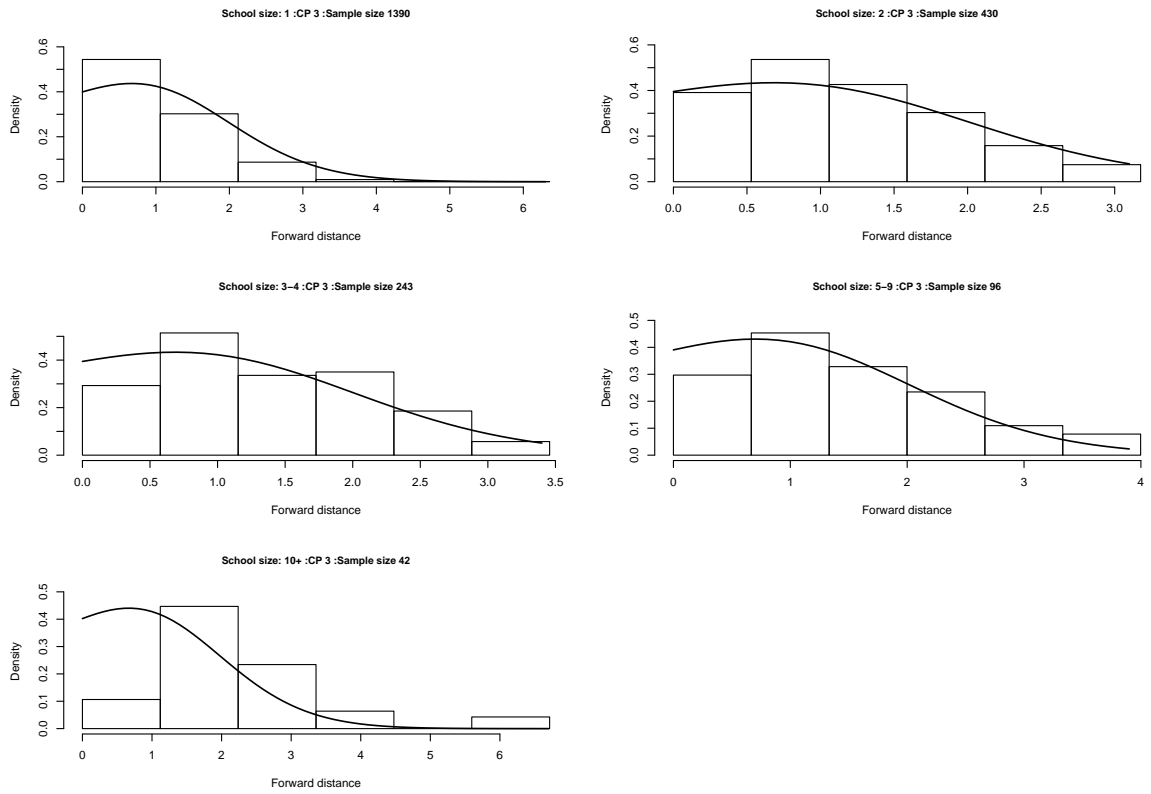


Figure 2. d) The plots of forward distances (n.miles) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPIII. The histograms denote the observation and the solid lines denote the fitted values.

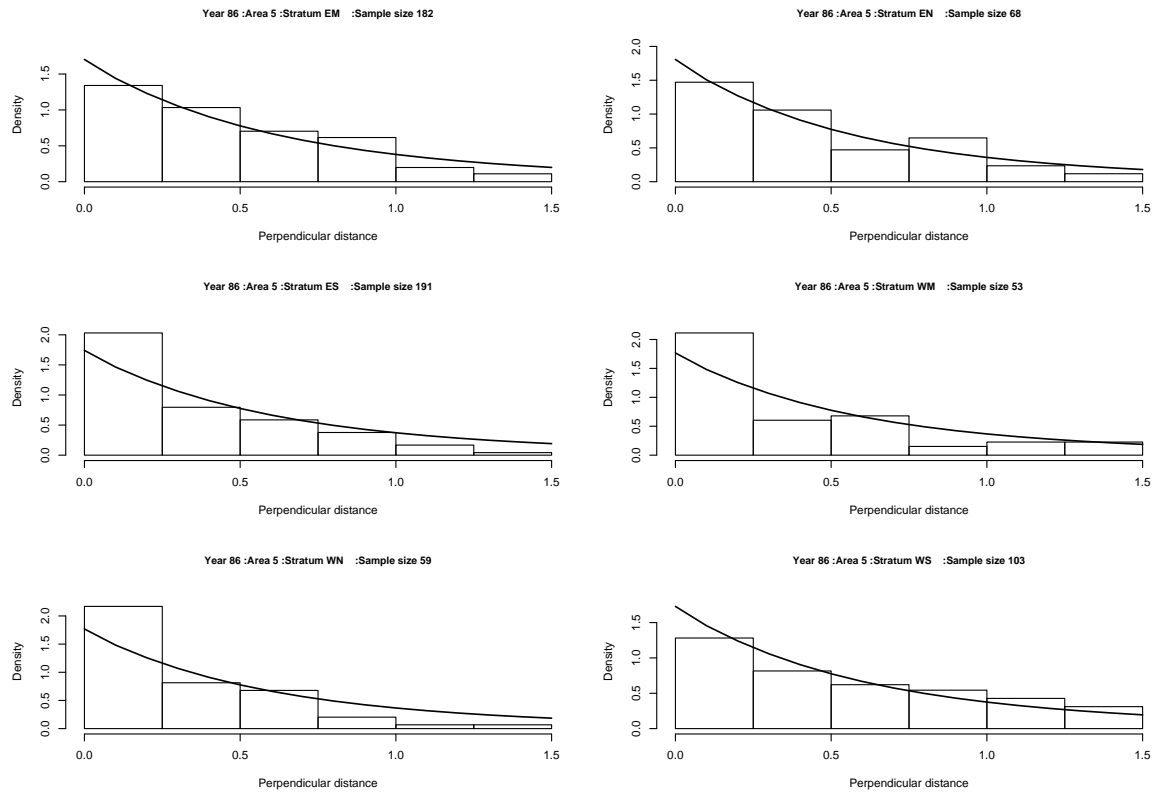


Figure 3. a) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1985/86. The histograms denote the observation and the solid lines denote the fitted values.

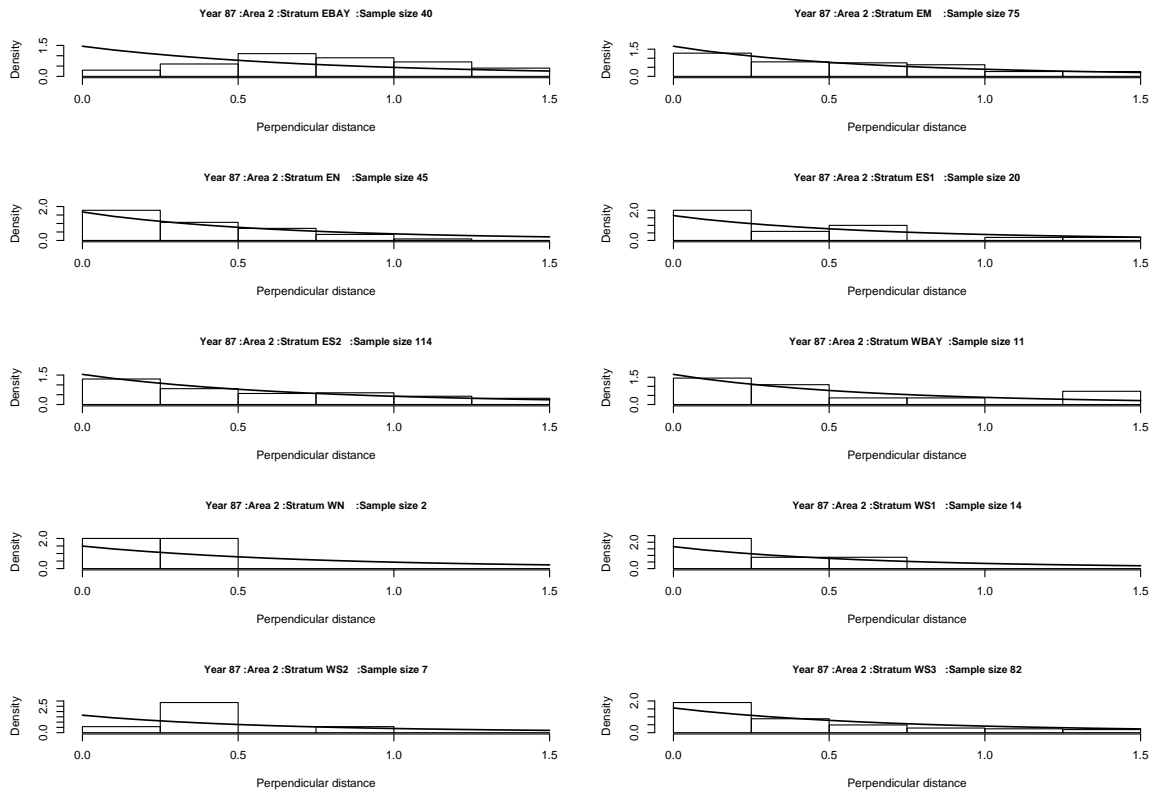


Figure 3. b) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1986/87. The histograms denote the observation and the solid lines denote the fitted values.

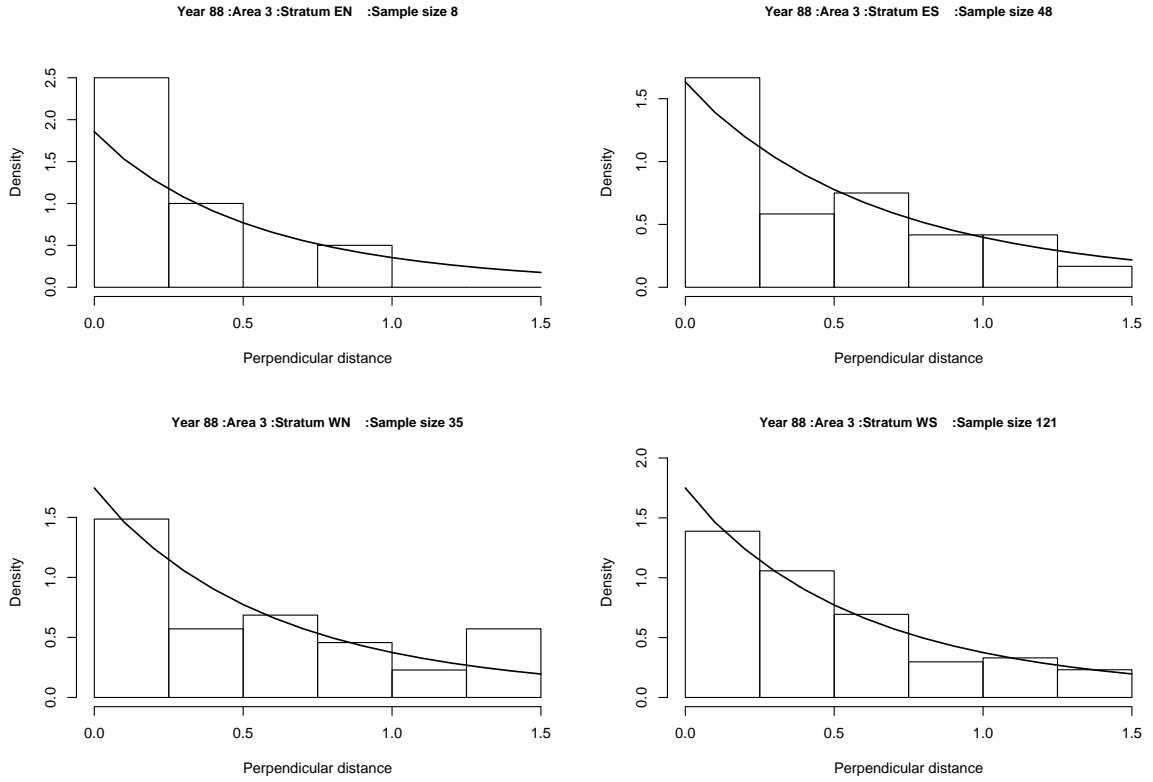


Figure 3. c) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1987/88. The histograms denote the observation and the solid lines denote the fitted values.

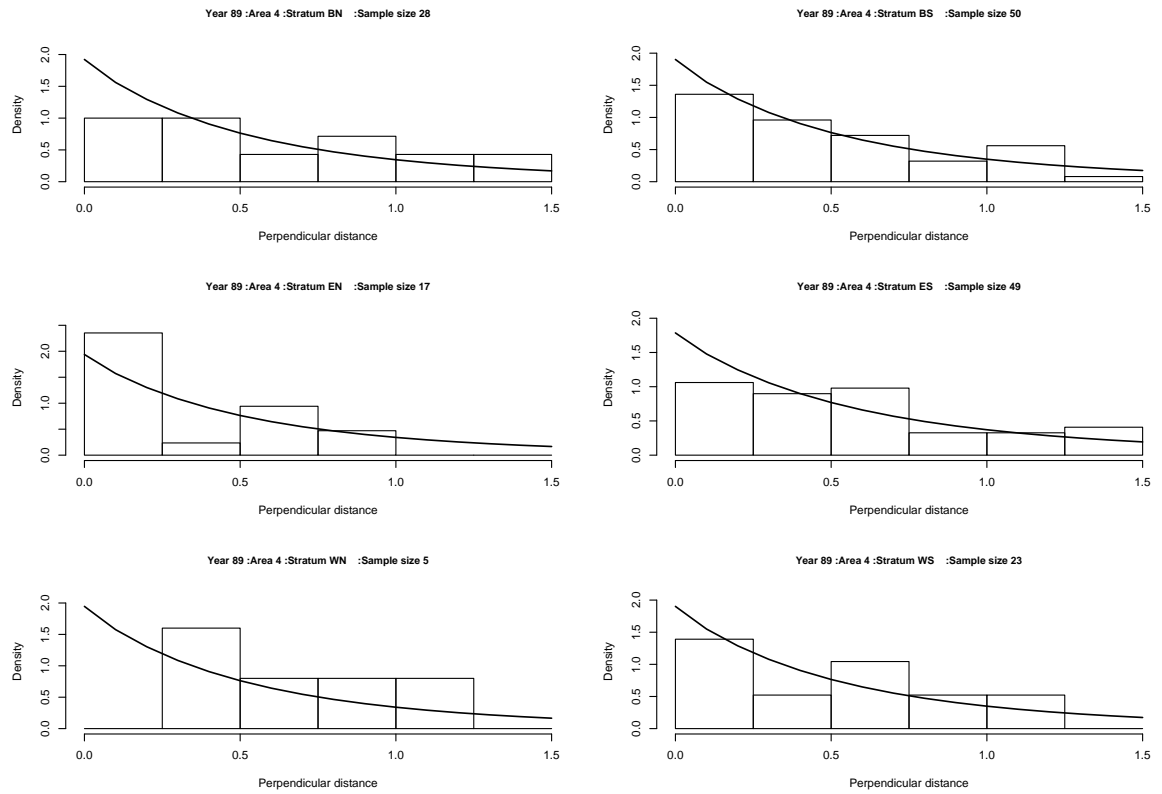


Figure 3. d) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1988/89. The histograms denote the observation and the solid lines denote the fitted values.

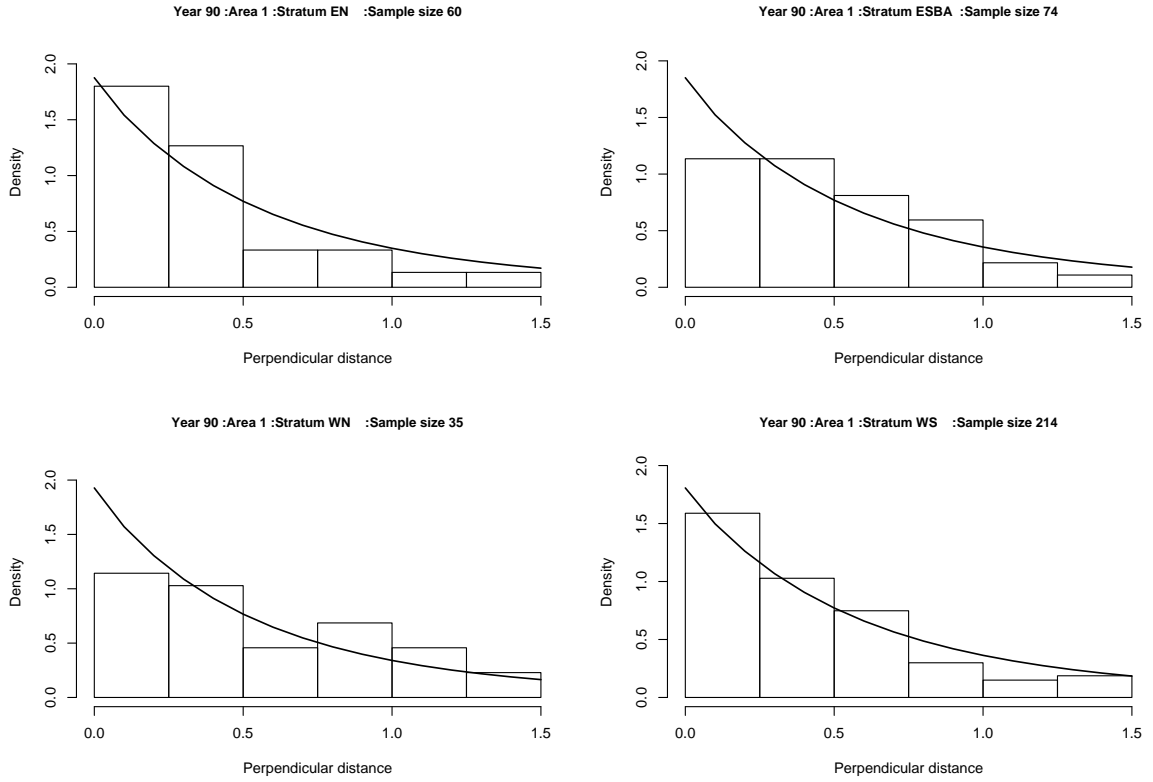


Figure 3. e) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1989/90. The histograms denote the observation and the solid lines denote the fitted values.

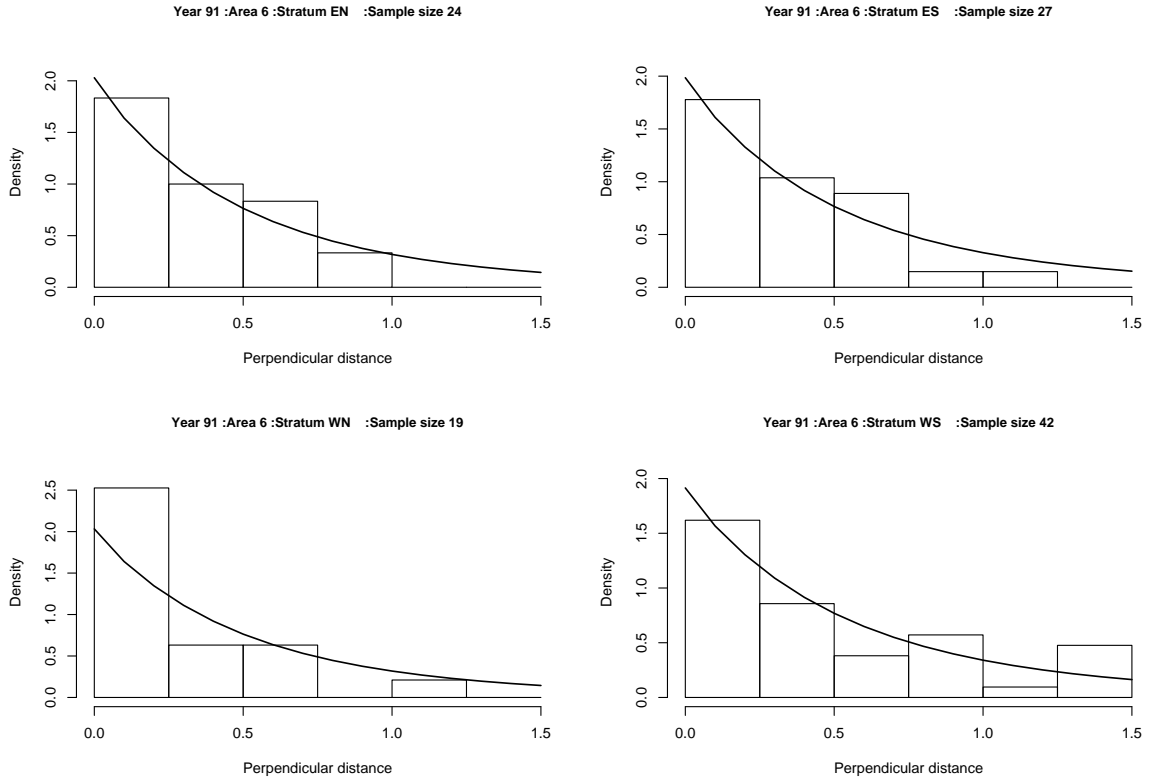


Figure 3. f) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1990/91. The histograms denote the observation and the solid lines denote the fitted values.

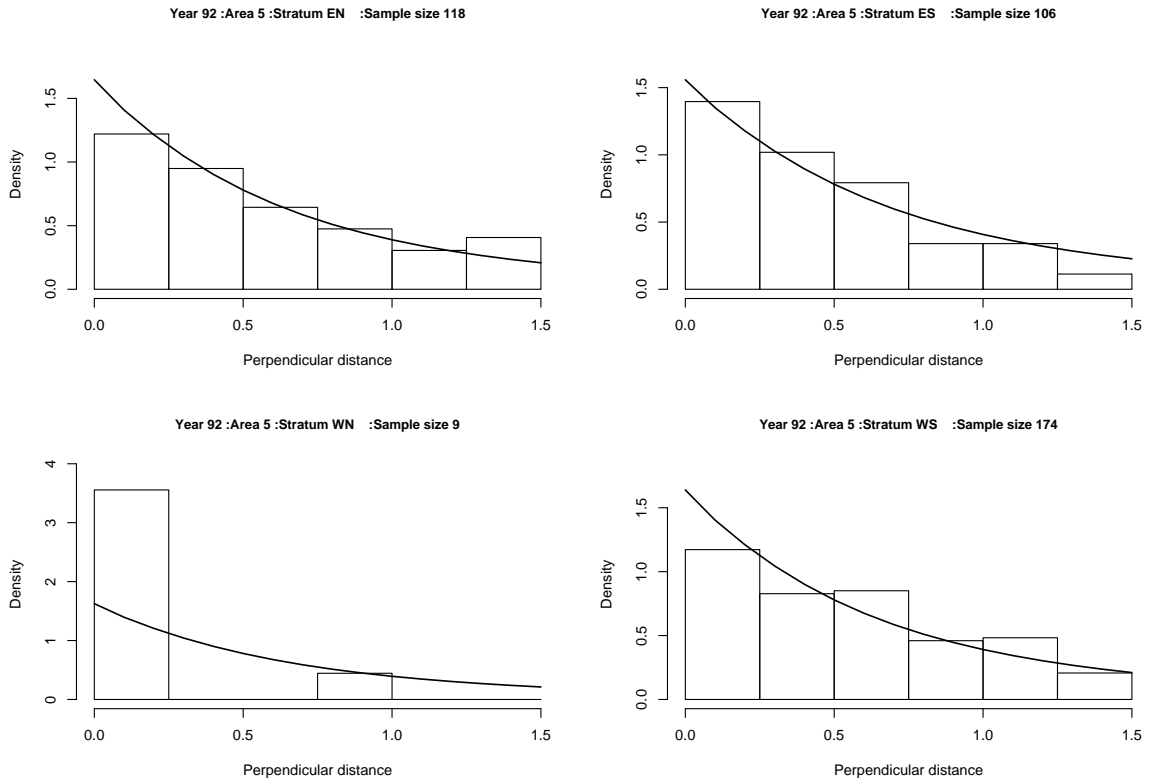


Figure 3. g) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1991/92. The histograms denote the observation and the solid lines denote the fitted values.

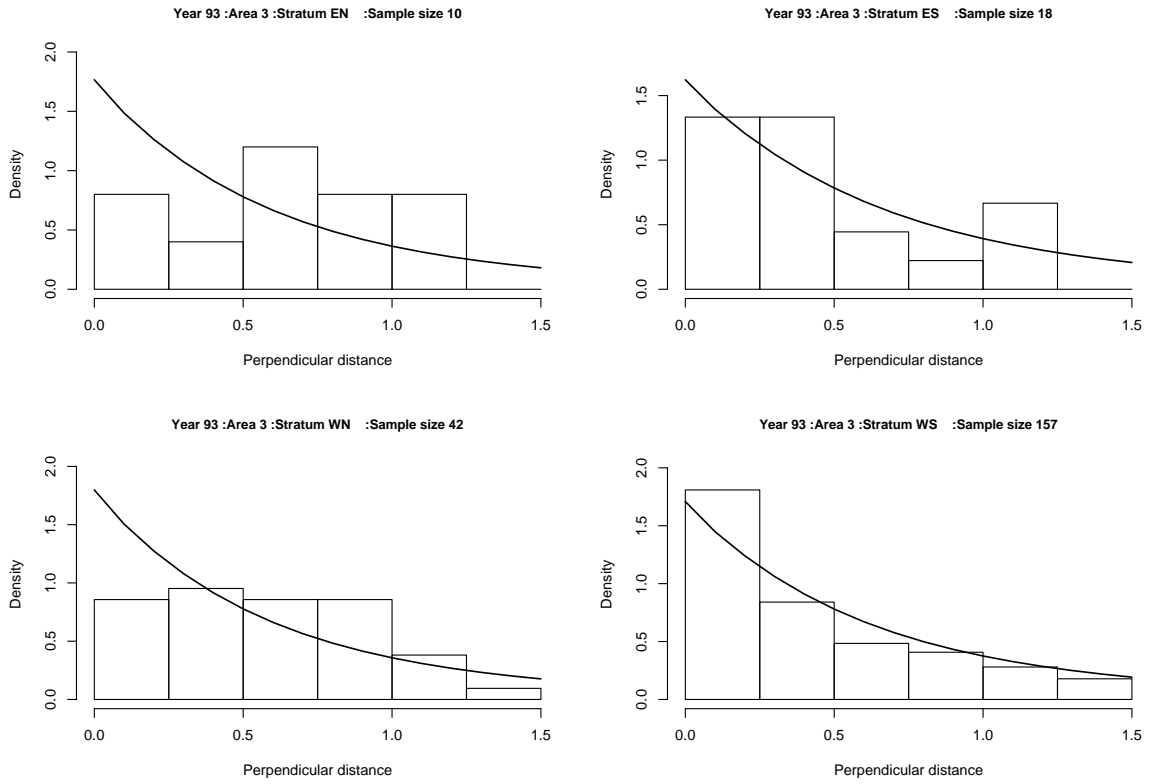


Figure 3. h) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1992/93. The histograms denote the observation and the solid lines denote the fitted values.

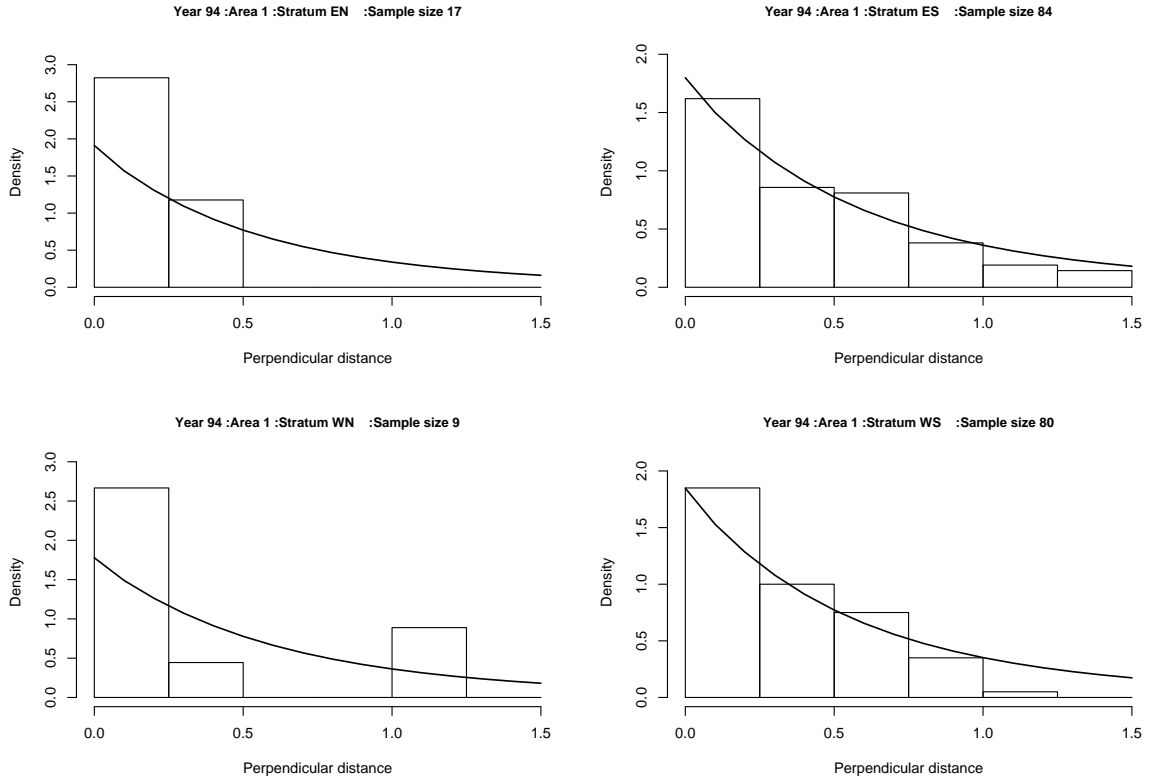


Figure 3. i) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1993/94. The histograms denote the observation and the solid lines denote the fitted values.

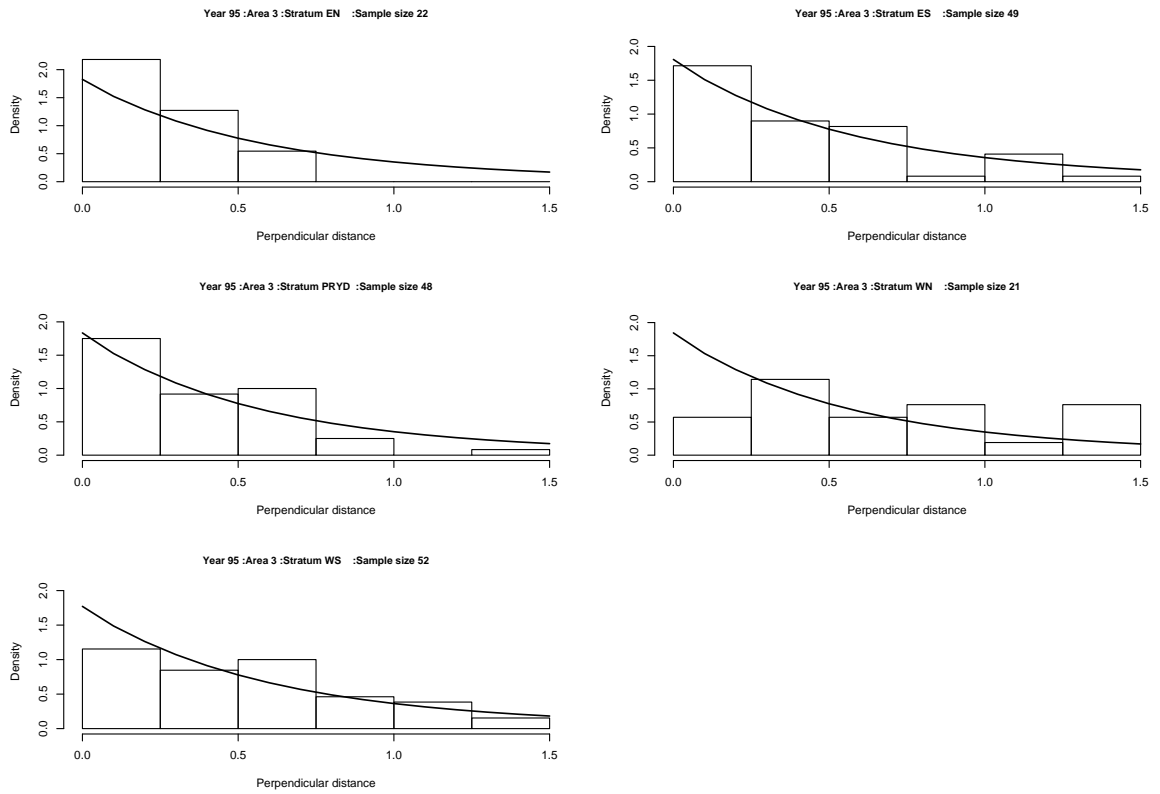


Figure 3. j) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1994/95. The histograms denote the observation and the solid lines denote the fitted values.

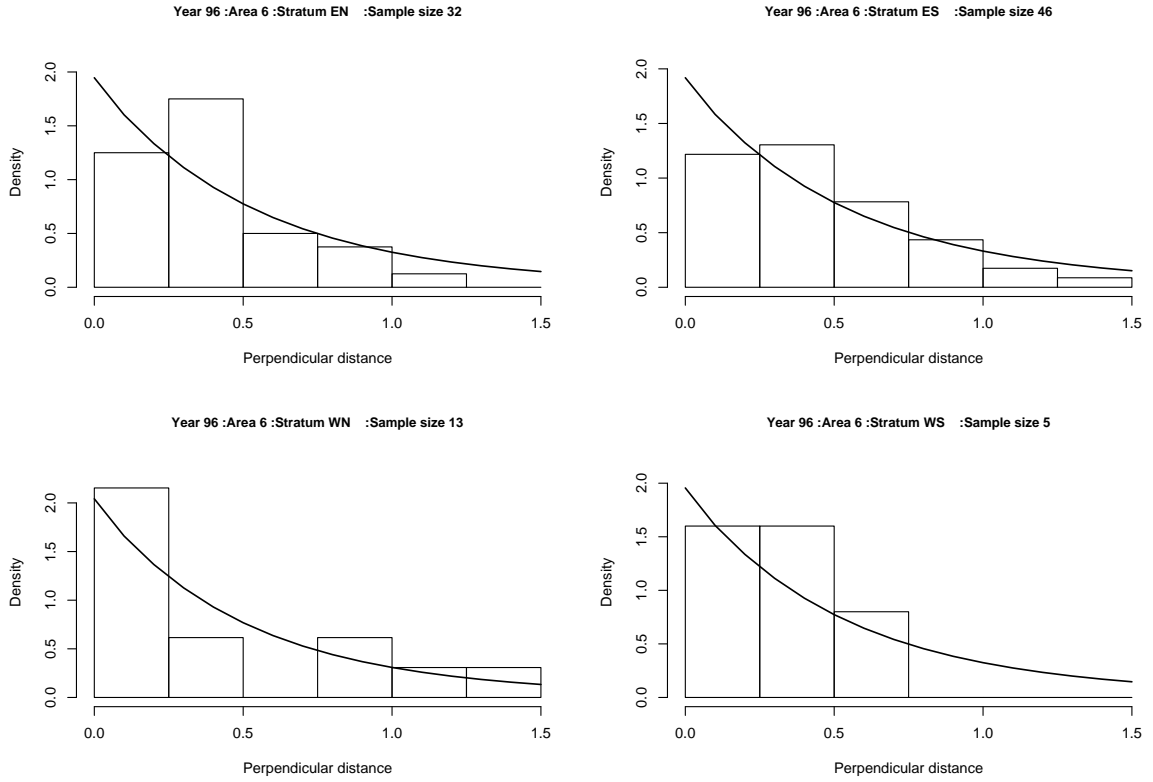


Figure 3. k) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1995/96. The histograms denote the observation and the solid lines denote the fitted values.

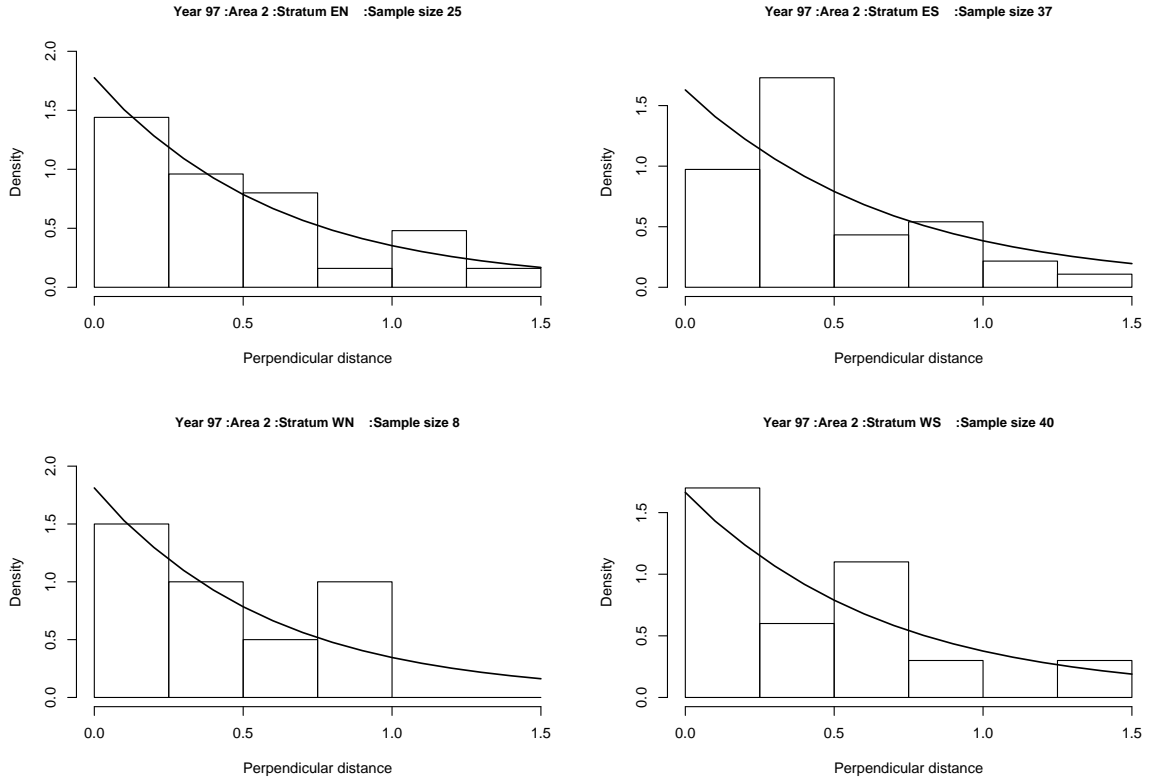


Figure 3. 1) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1996/97. The histograms denote the observation and the solid lines denote the fitted values.

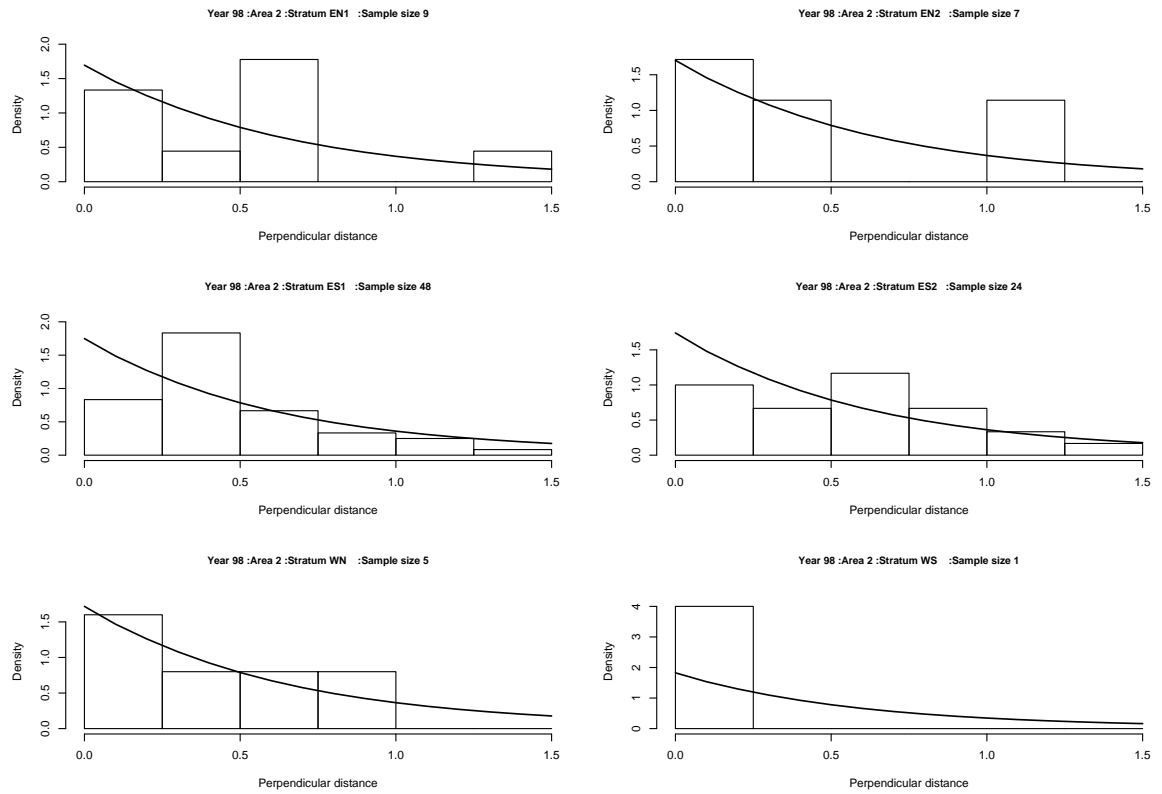


Figure 3. m) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1997/98. The histograms denote the observation and the solid lines denote the fitted values.

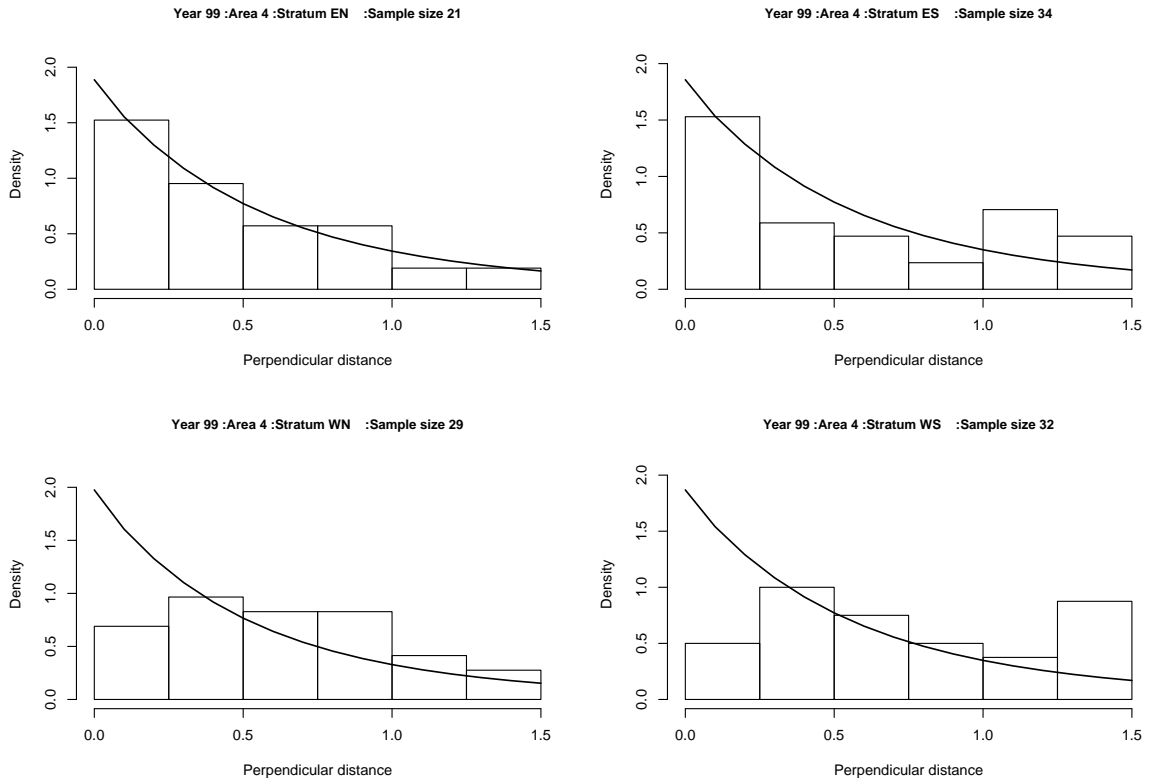


Figure 3. n) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1998/99. The histograms denote the observation and the solid lines denote the fitted values.

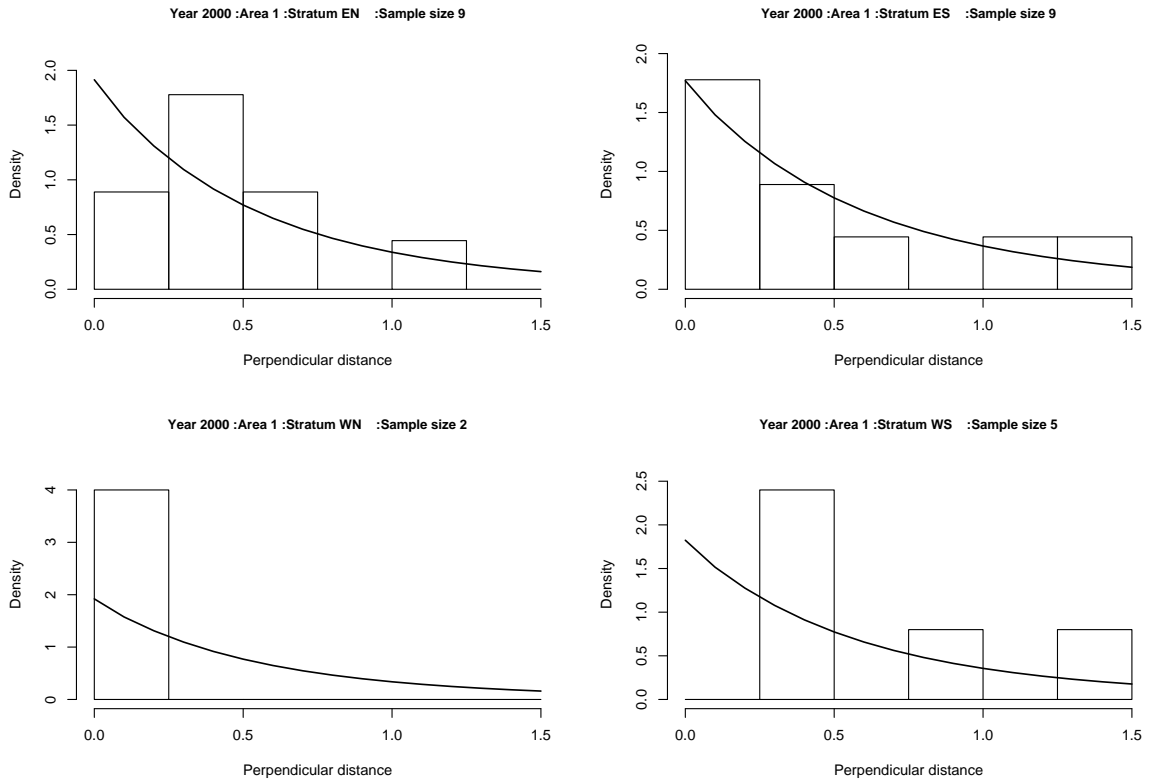


Figure 3. o) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 1999/2000. The histograms denote the observation and the solid lines denote the fitted values.

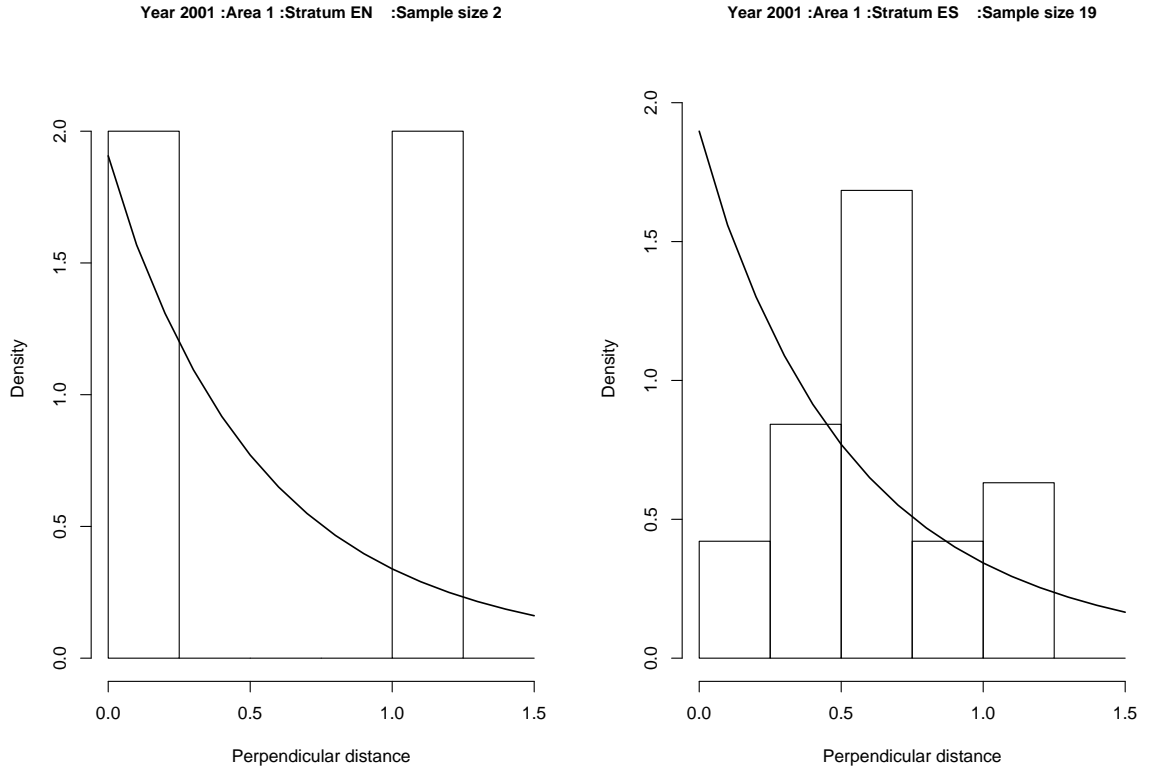


Figure 3. p) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 2000/01 (Area I). The histograms denote the observation and the solid lines denote the fitted values.

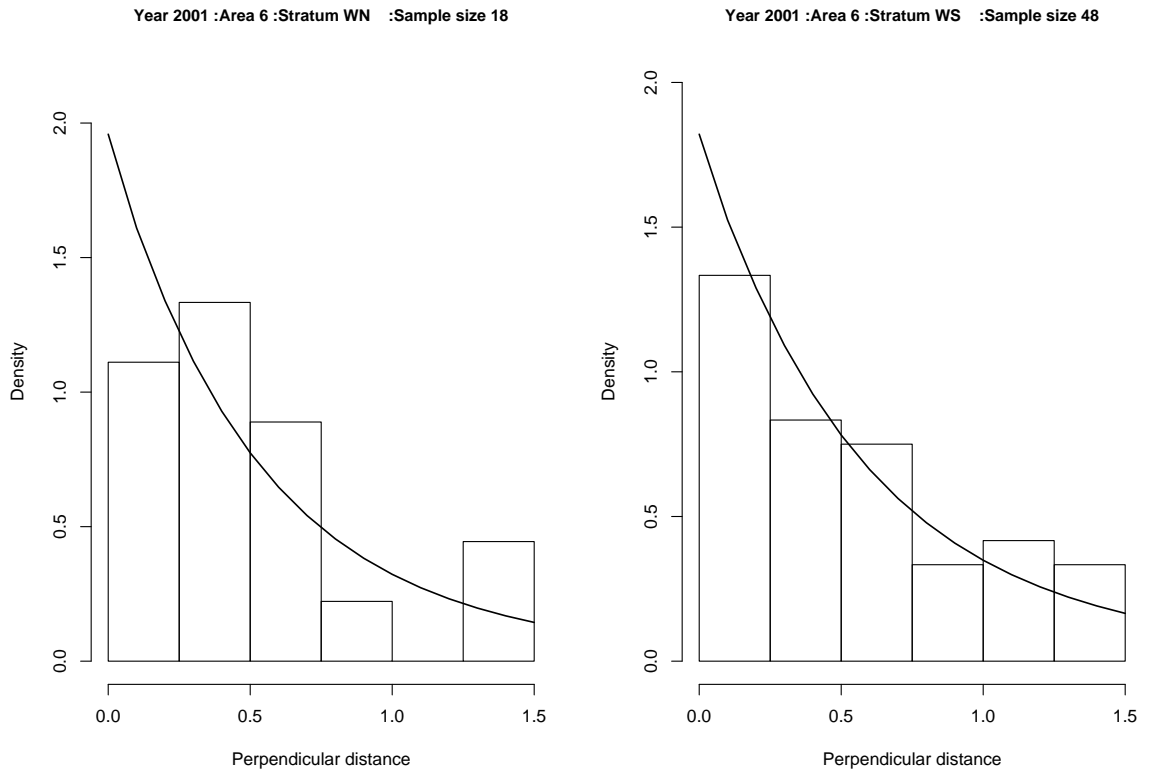


Figure 3. q) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 2000/01 (Area VI). The histograms denote the observation and the solid lines denote the fitted values.

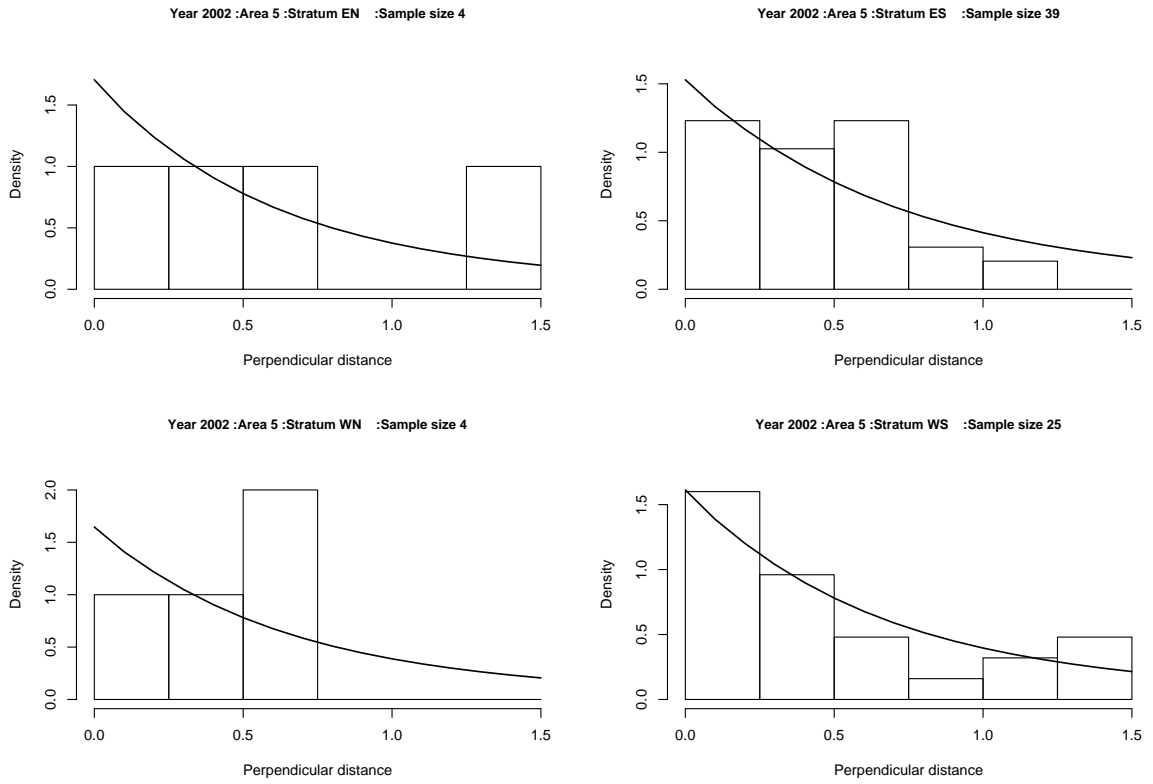


Figure 3. r) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 2001/02. The histograms denote the observation and the solid lines denote the fitted values.

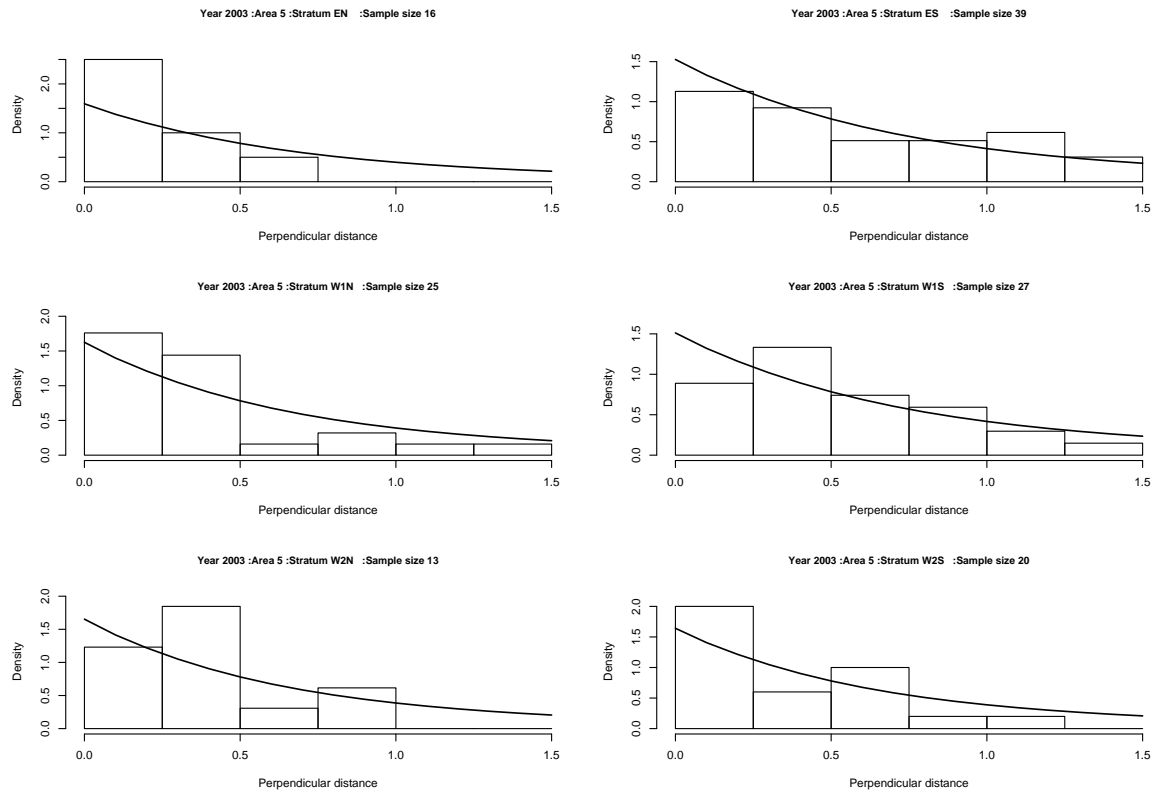


Figure 3. s) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 2002/03. The histograms denote the observation and the solid lines denote the fitted values.

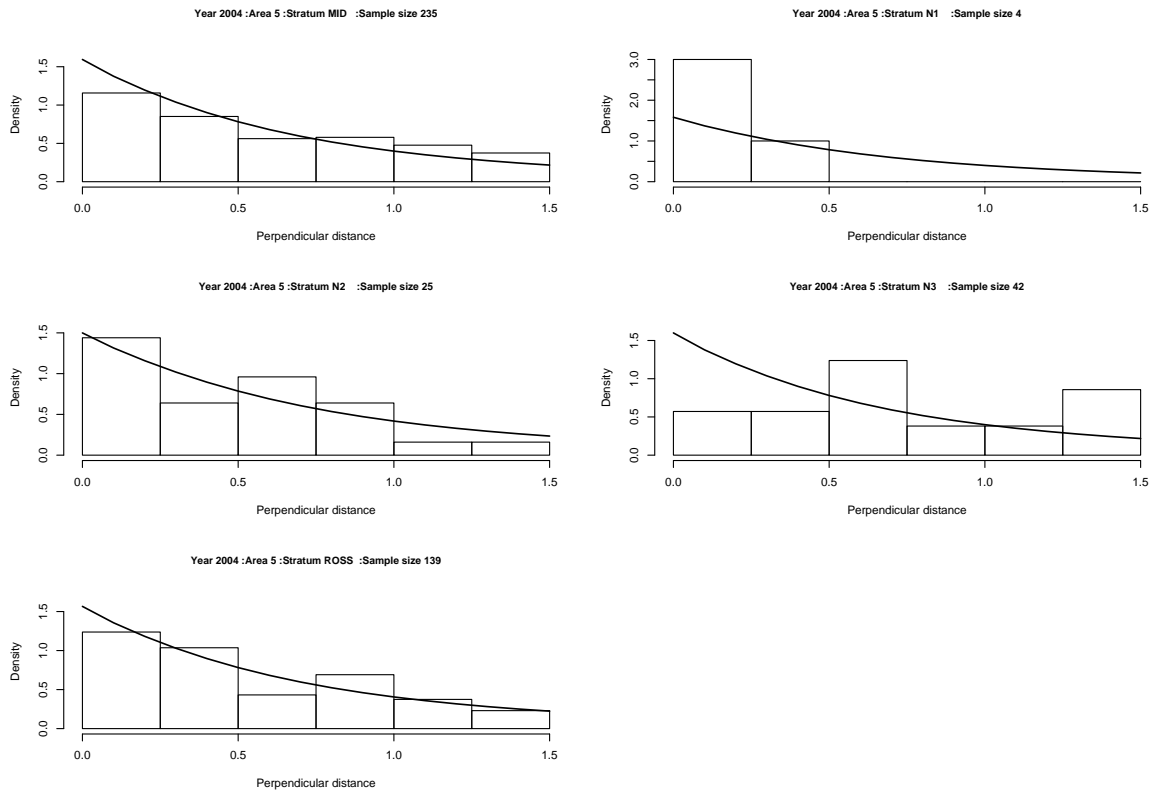


Figure 3. t) The plots of perpendicular distances (n.miles) in the Passing mode by survey stratum in 2003/04. The histograms denote the observation and the solid lines denote the fitted values.

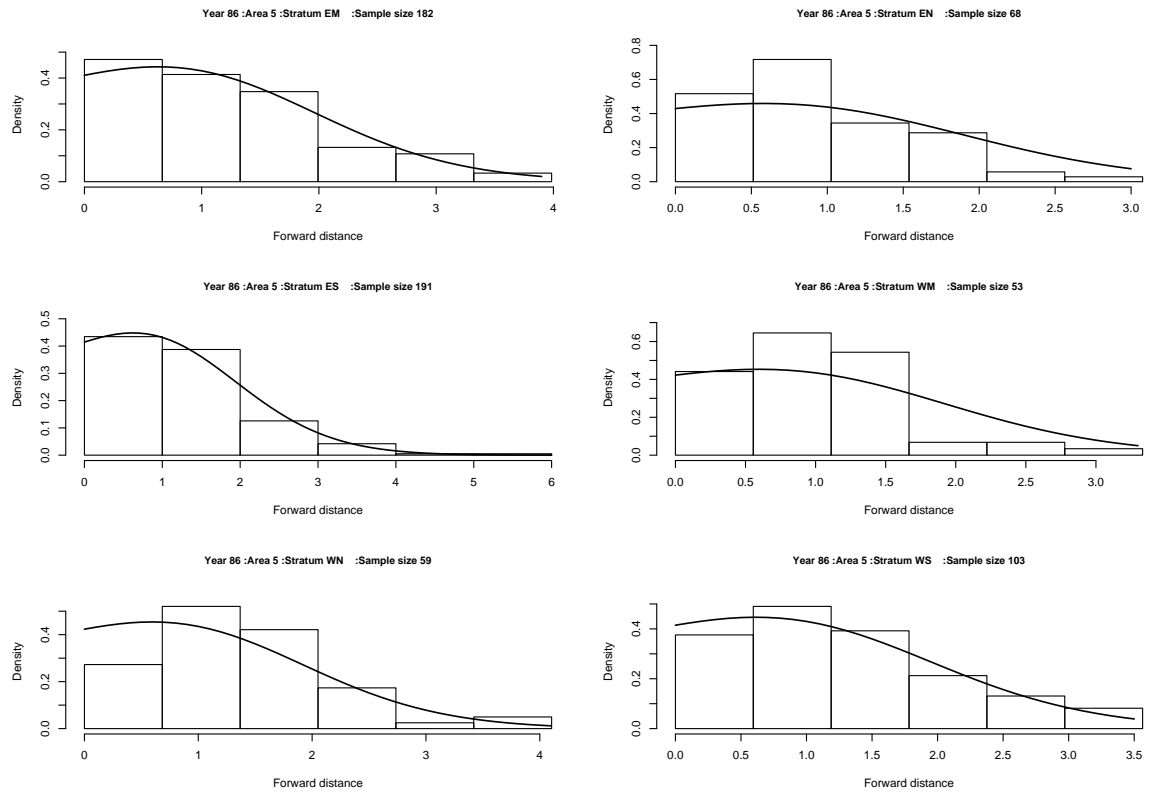


Figure 4. a) The plots of forward distances (n.miles) in the Passing mode by survey stratum in 1985/86. The histograms denote the observation and the solid lines denote the fitted values.

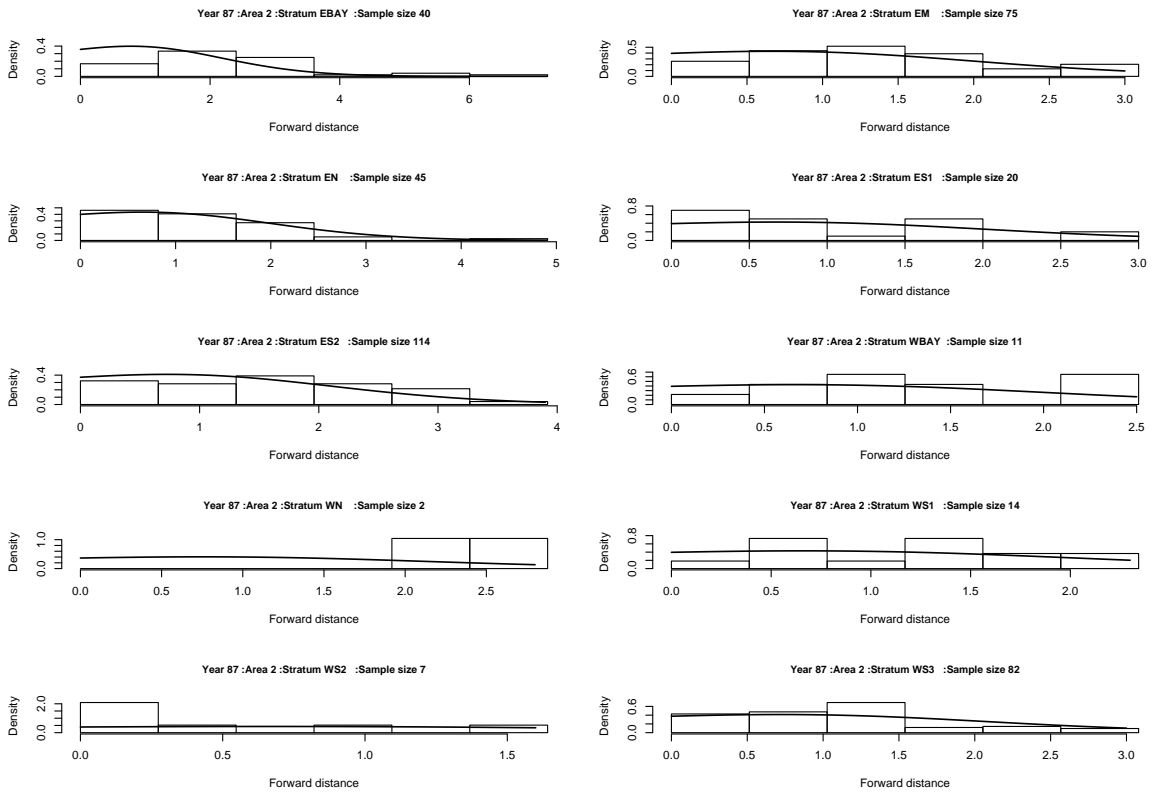


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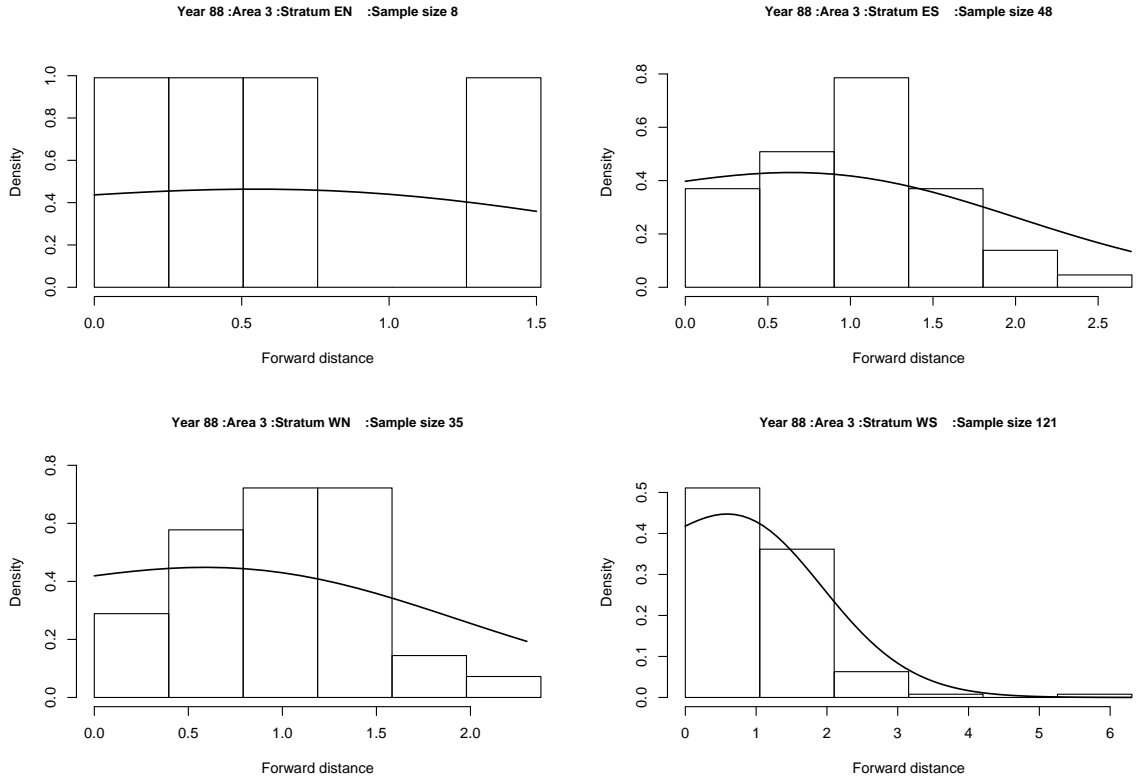


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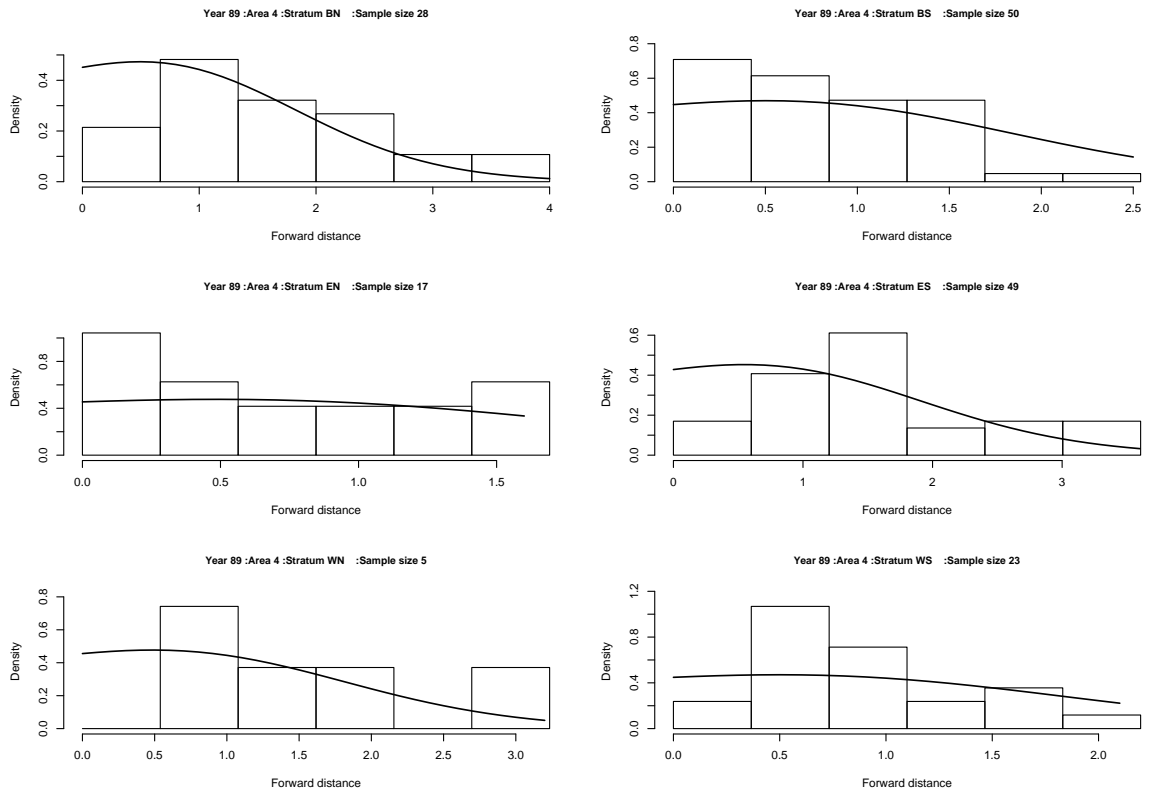


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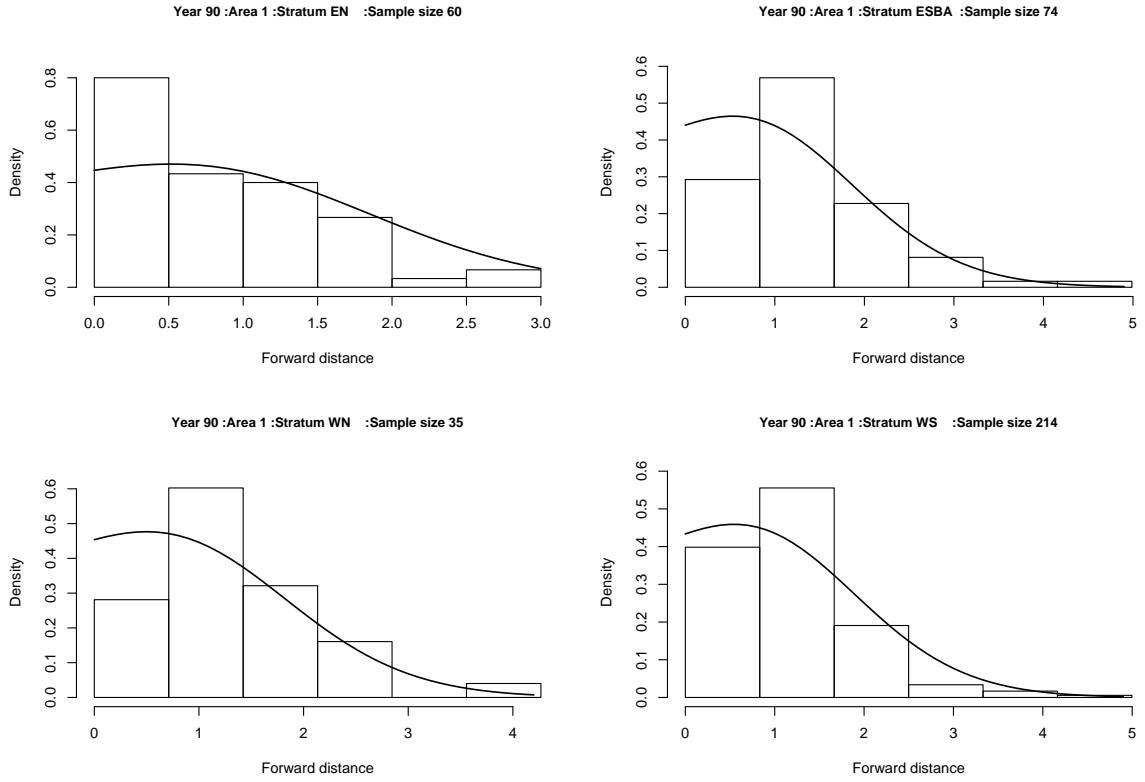


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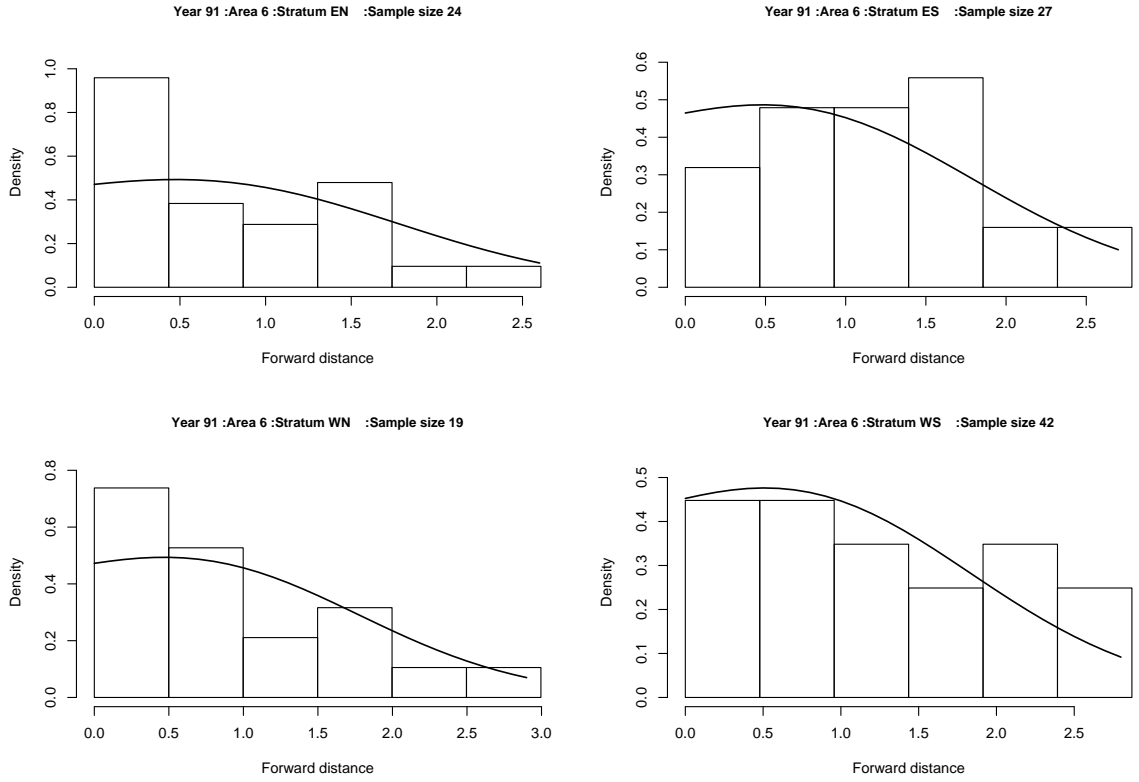


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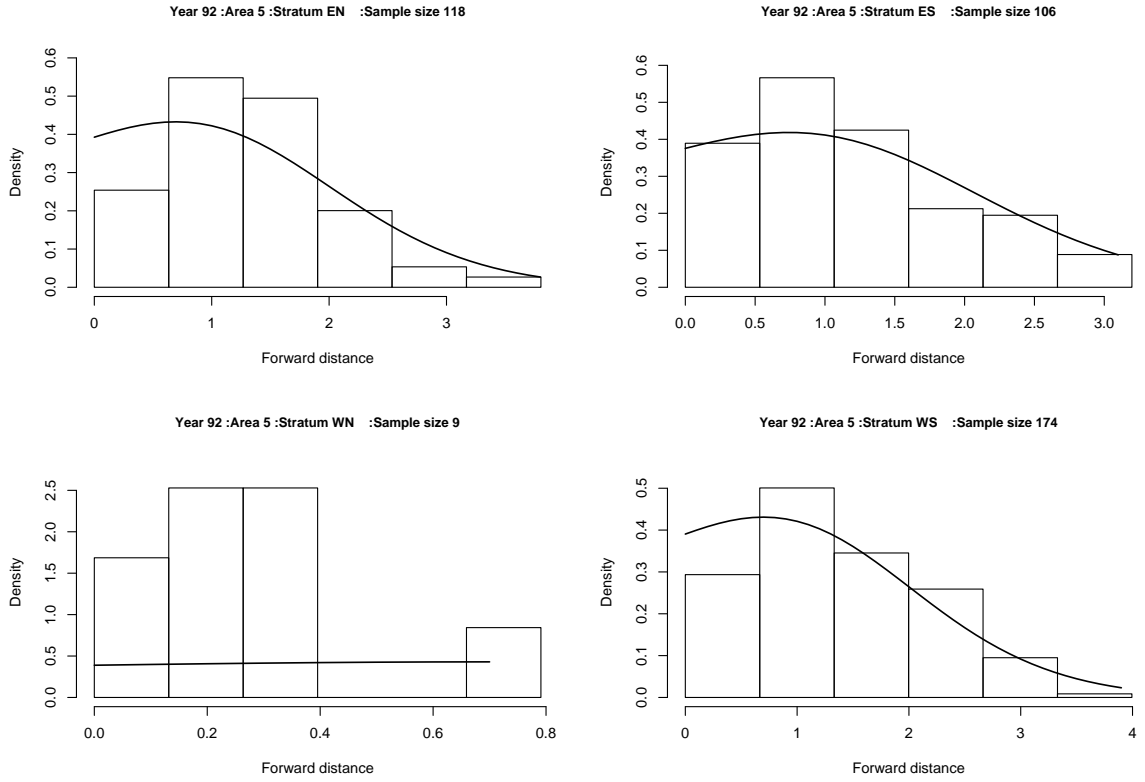


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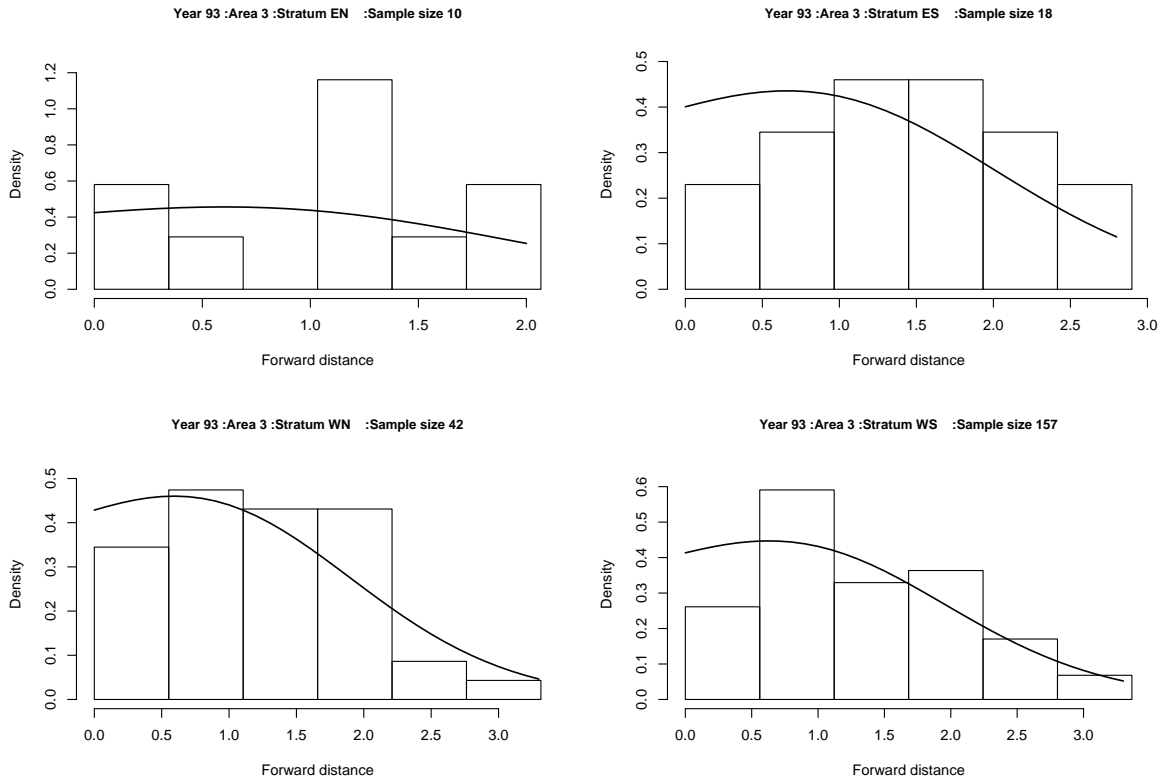


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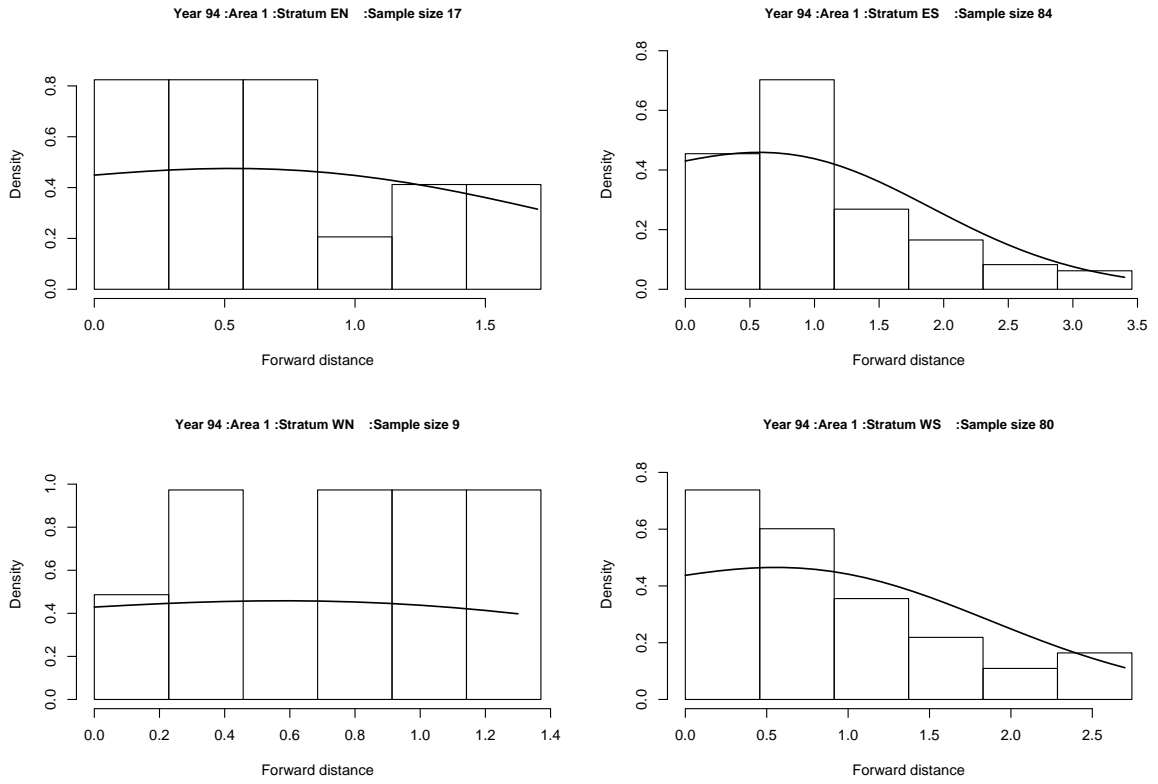


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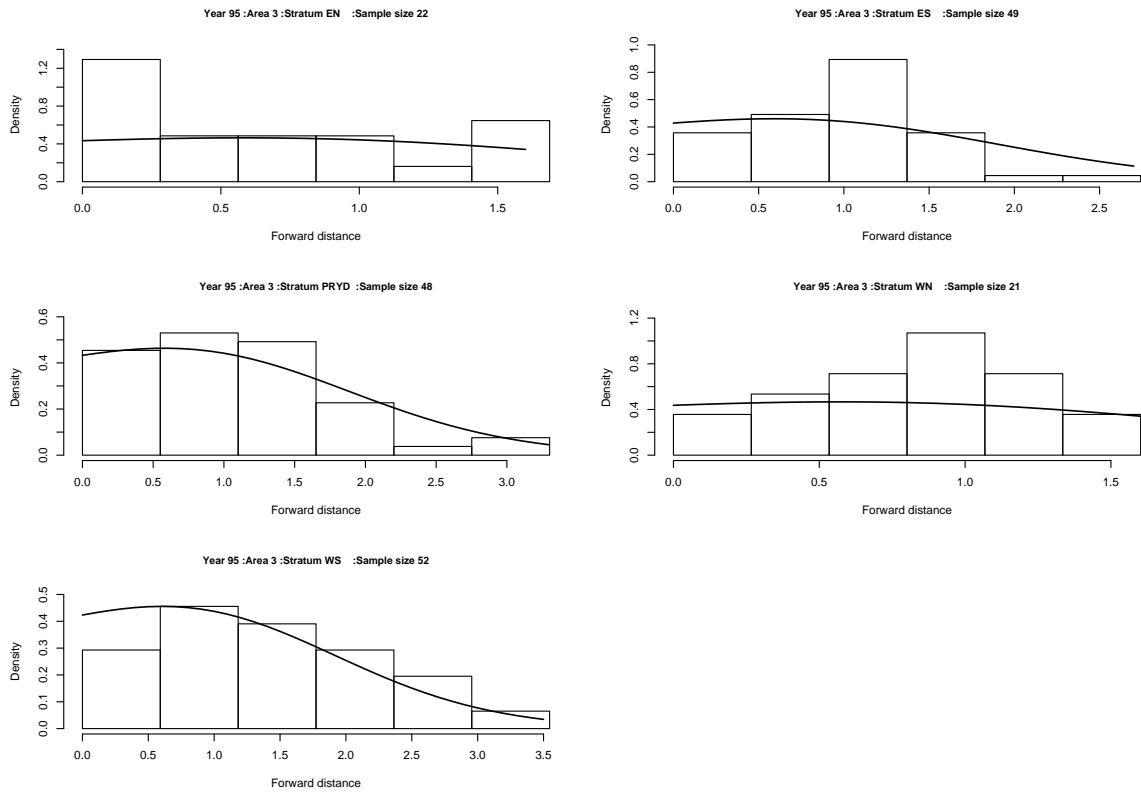


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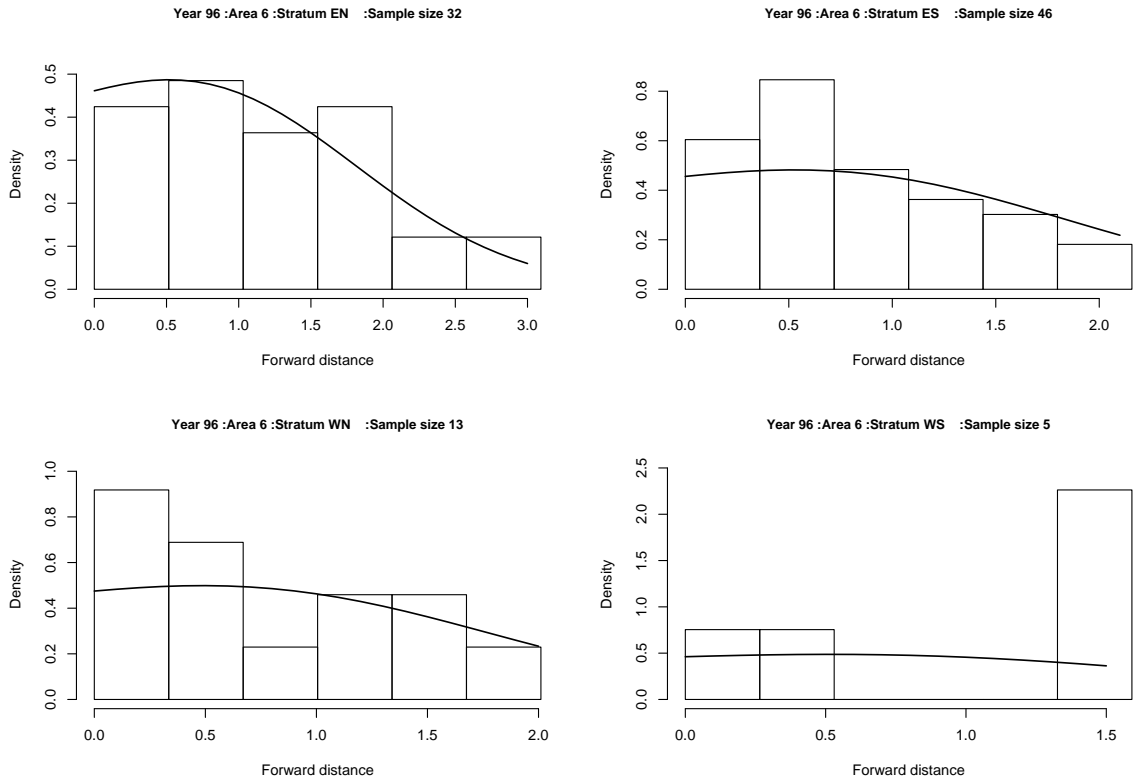


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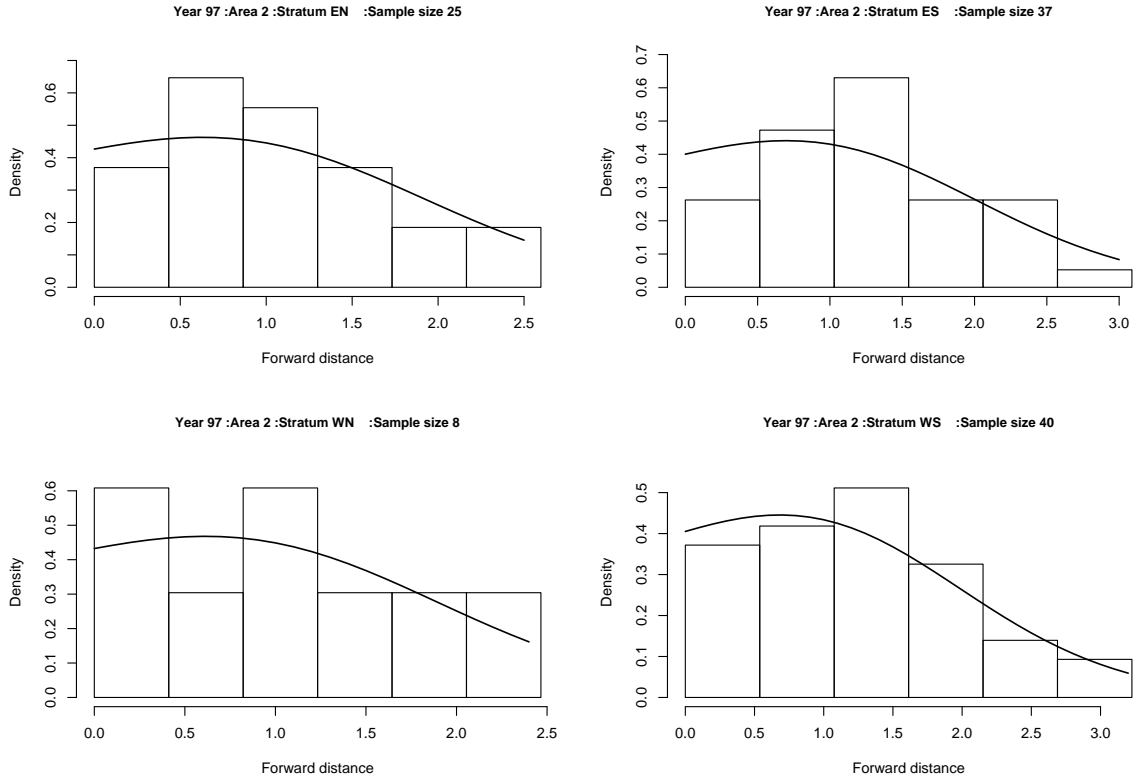


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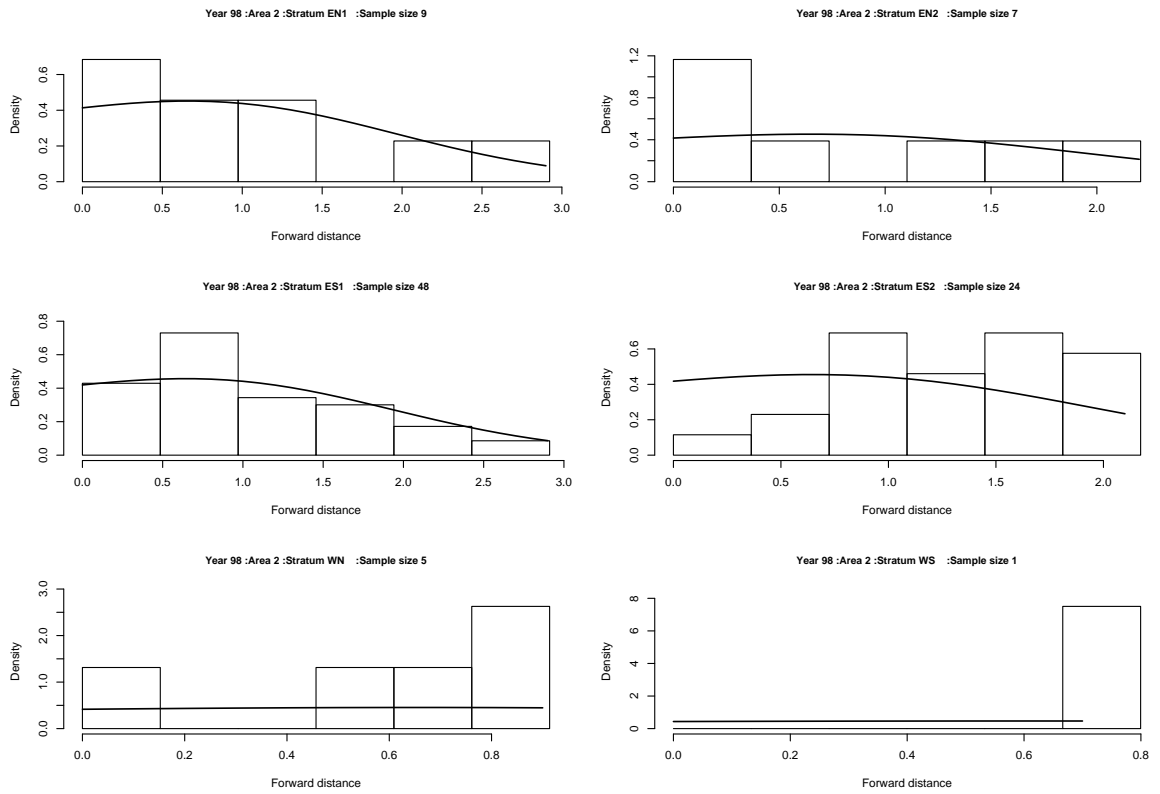


Figure 4. m) The plots of forward distances (n.miles) in the Passing mode by survey stratum in 1997/98. The histograms denote the observation and the solid lines denote the fitted values.

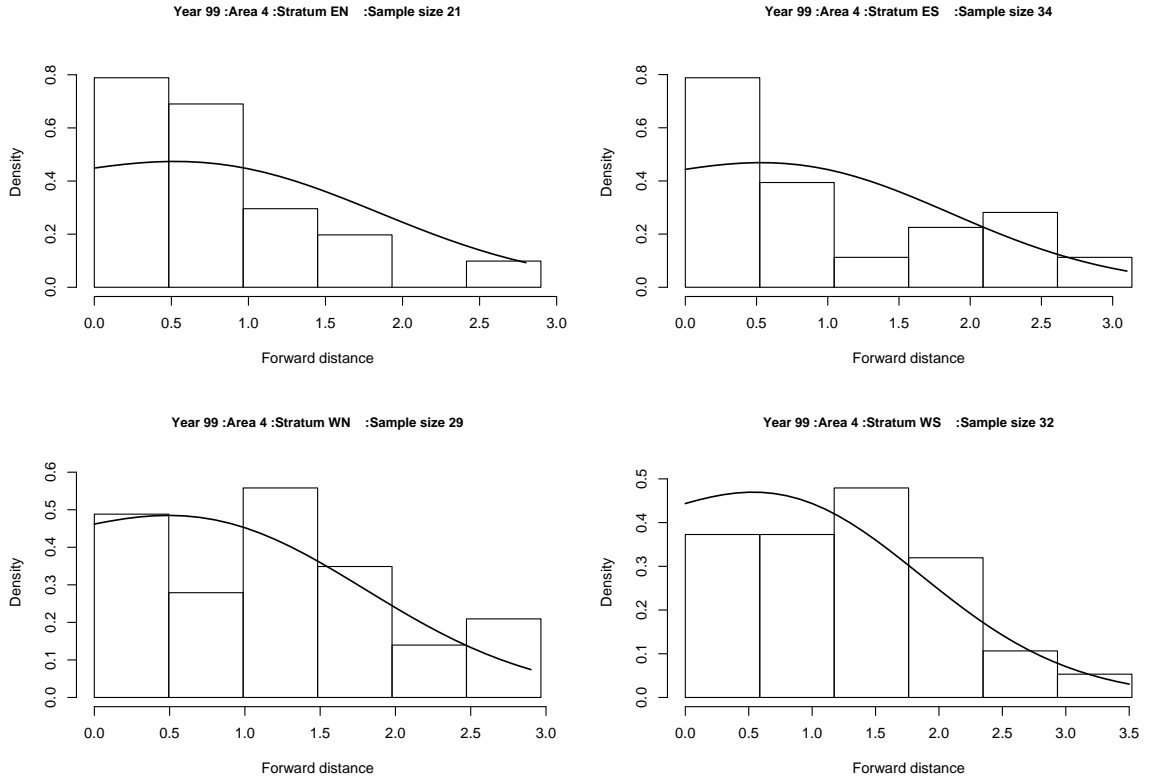


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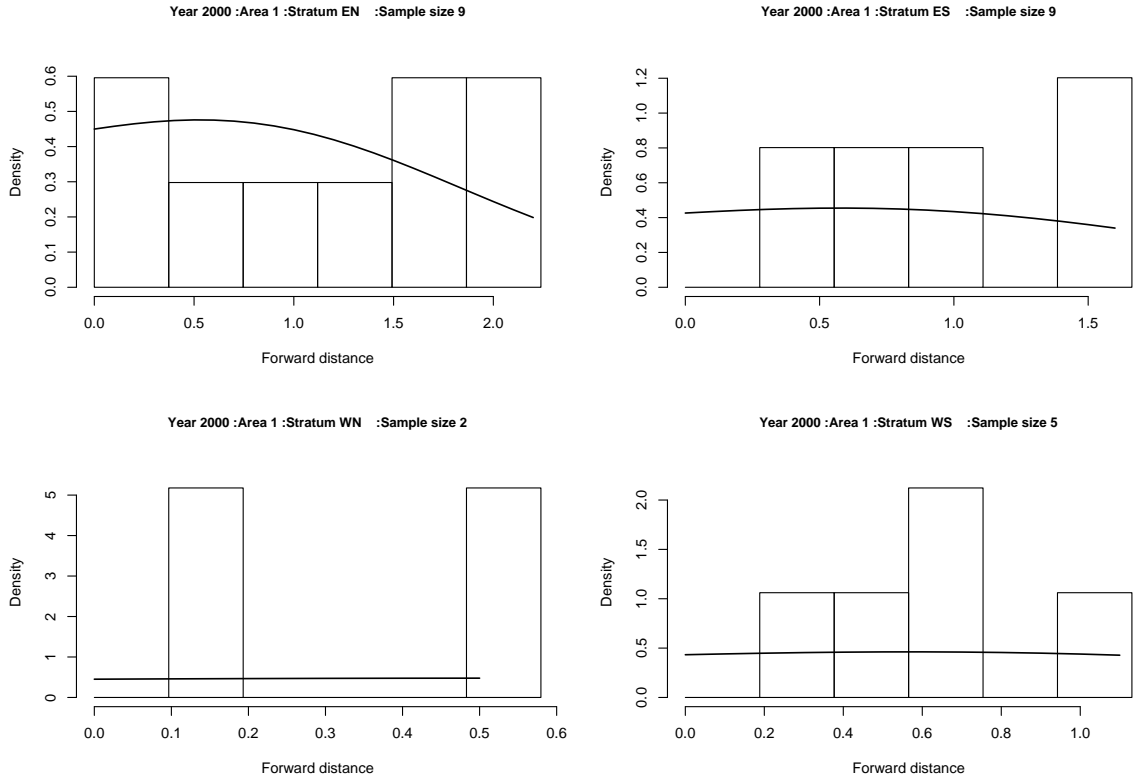


Figure 4. o) The plots of forward distances (n.miles) in the Passing mode by survey stratum in 1999/2000. The histograms denote the observation and the solid lines denote the fitted values.

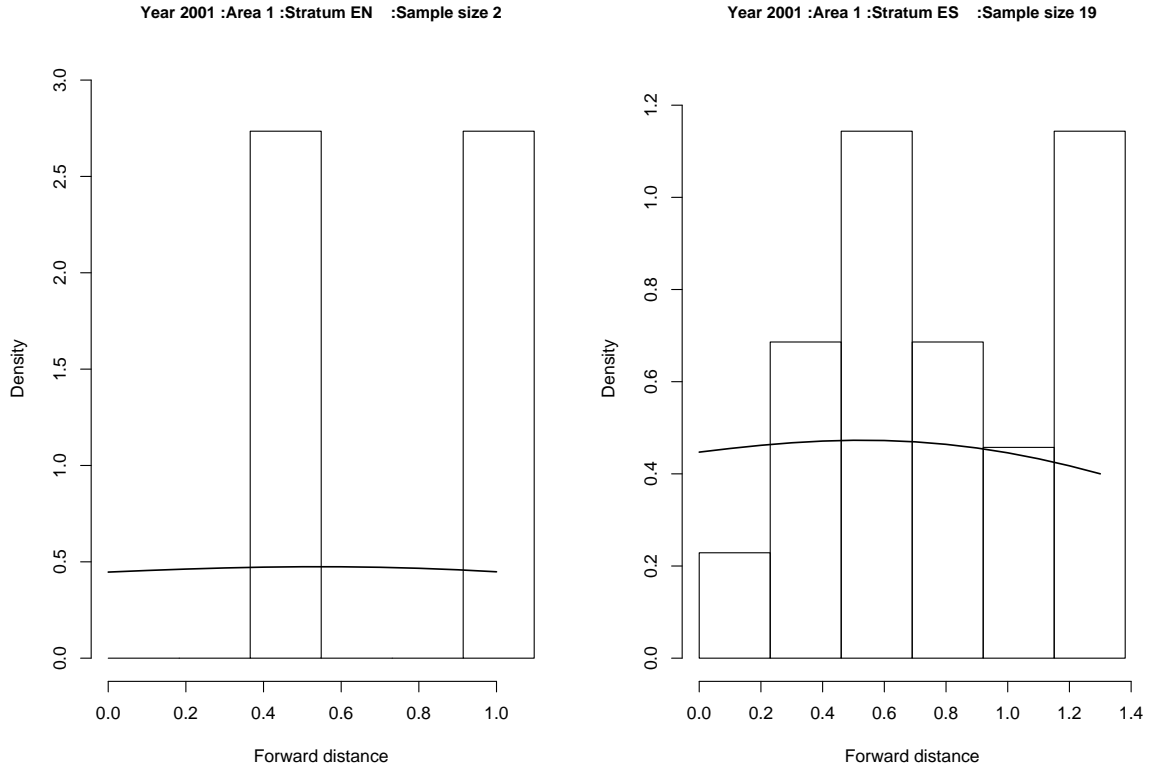


Figure 4. p) The plots of forward distances (n.miles) in the Passing mode by survey stratum in 2000/01 (Area I). The histograms denote the observation and the solid lines denote the fitted values.

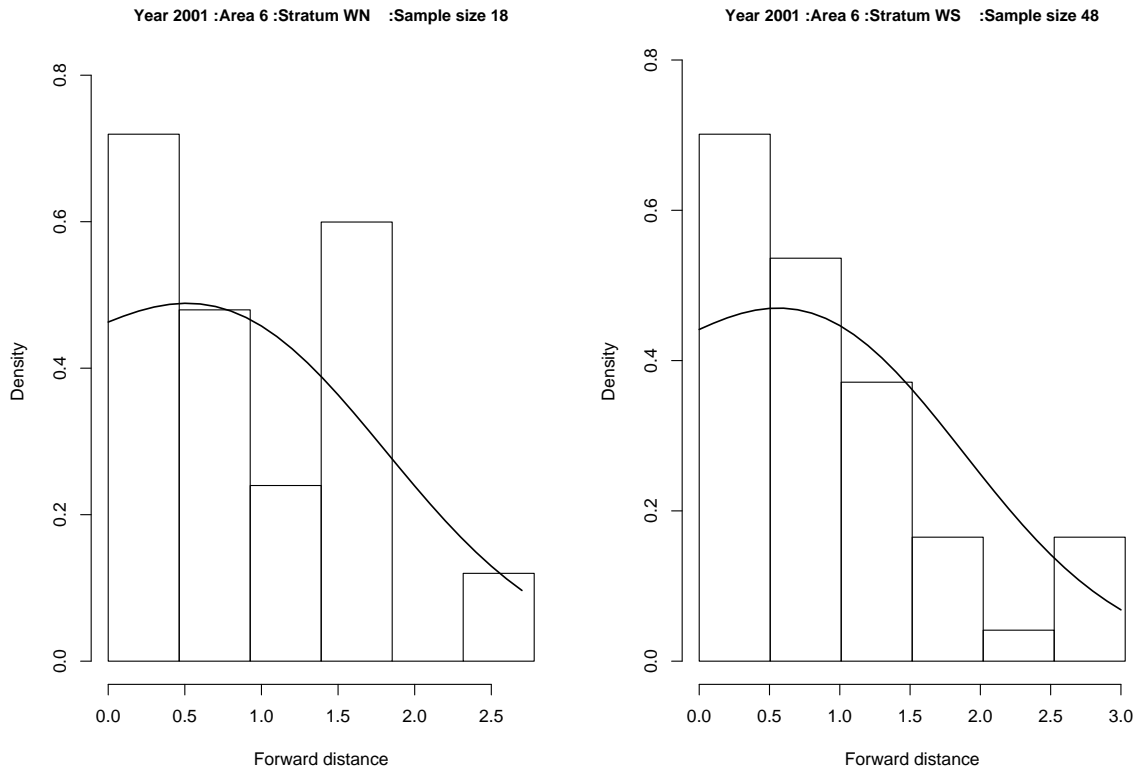


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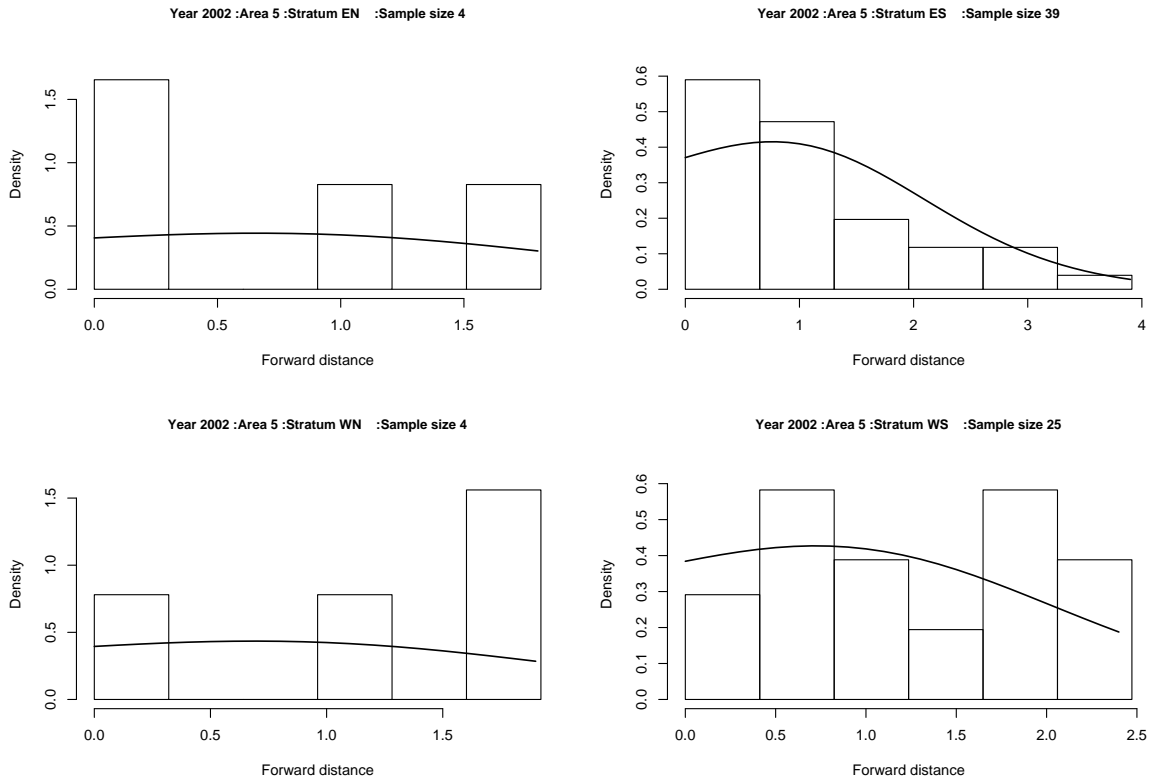


Figure 4. r) The plots of forward distances (n.miles) in the Passing mode by survey stratum in 2001/02. The histograms denote the observation and the solid lines denote the fitted values.

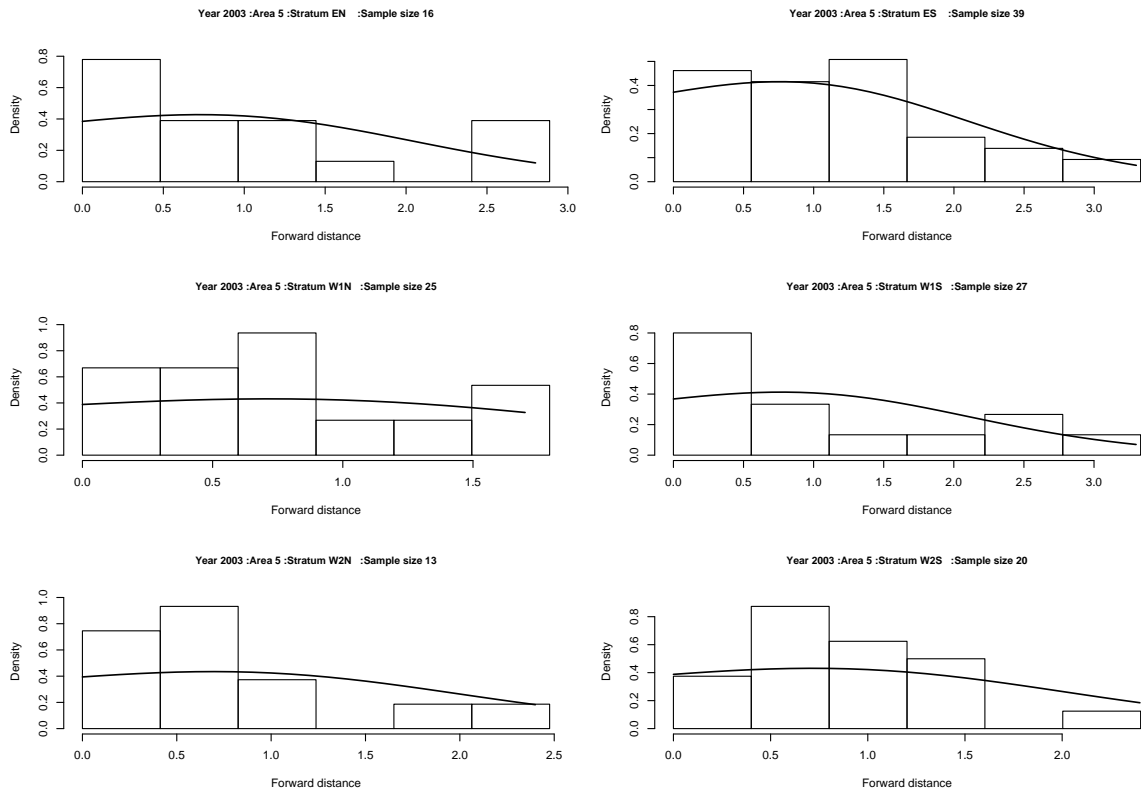


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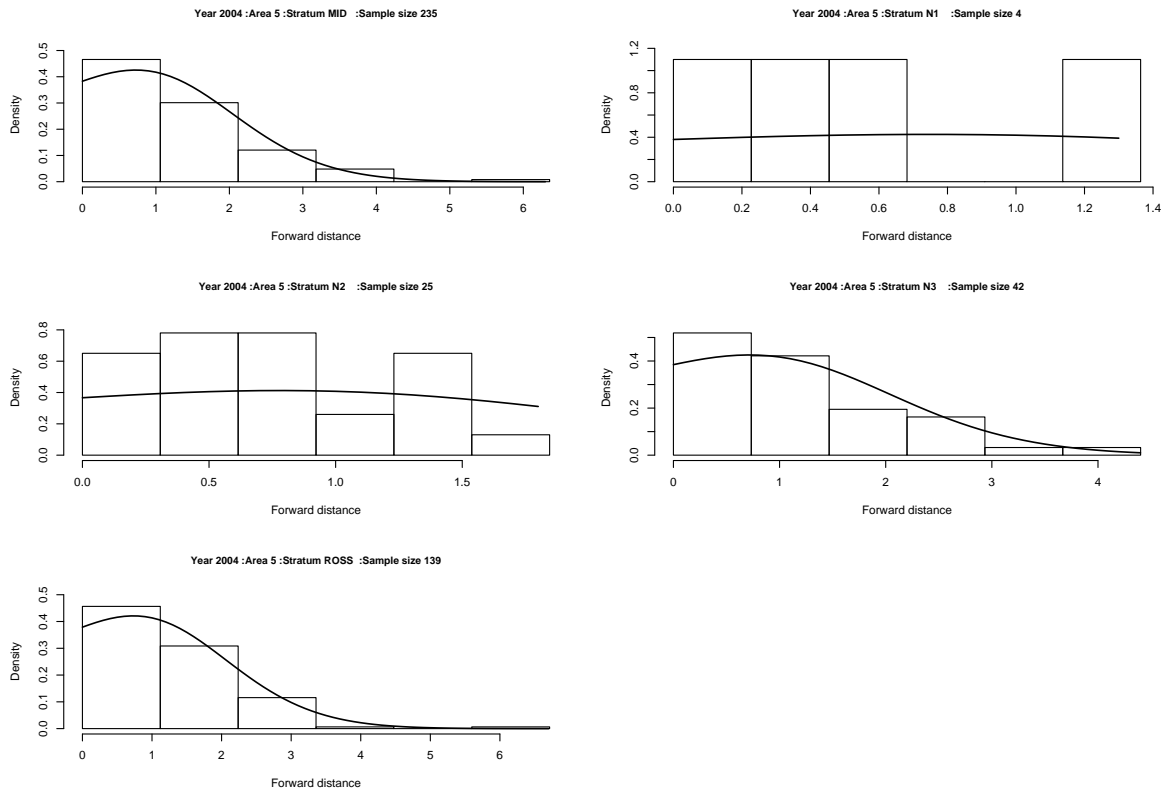


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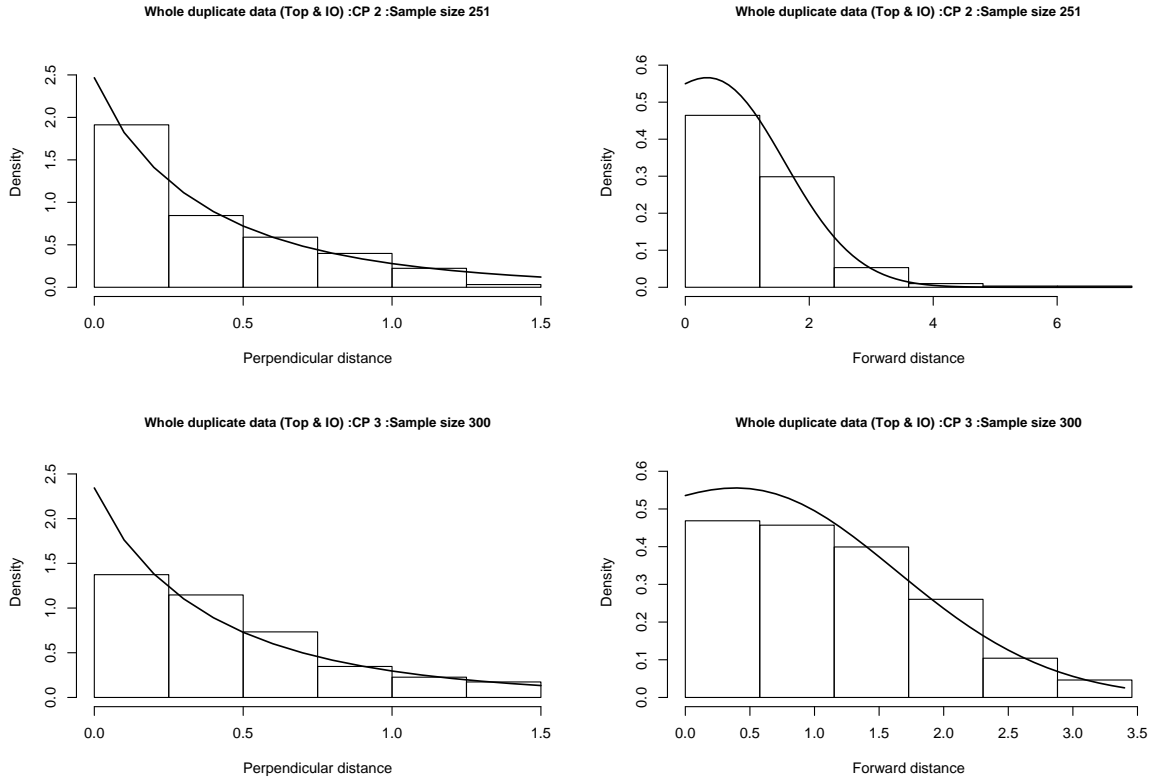


Figure 5. The plots of perpendicular and forward distances (n.miles) for the duplicate data (Topman and IO person) in the Passing mode in CP II and CP III. The histograms denote the observation and the solid lines denote the fitted values.

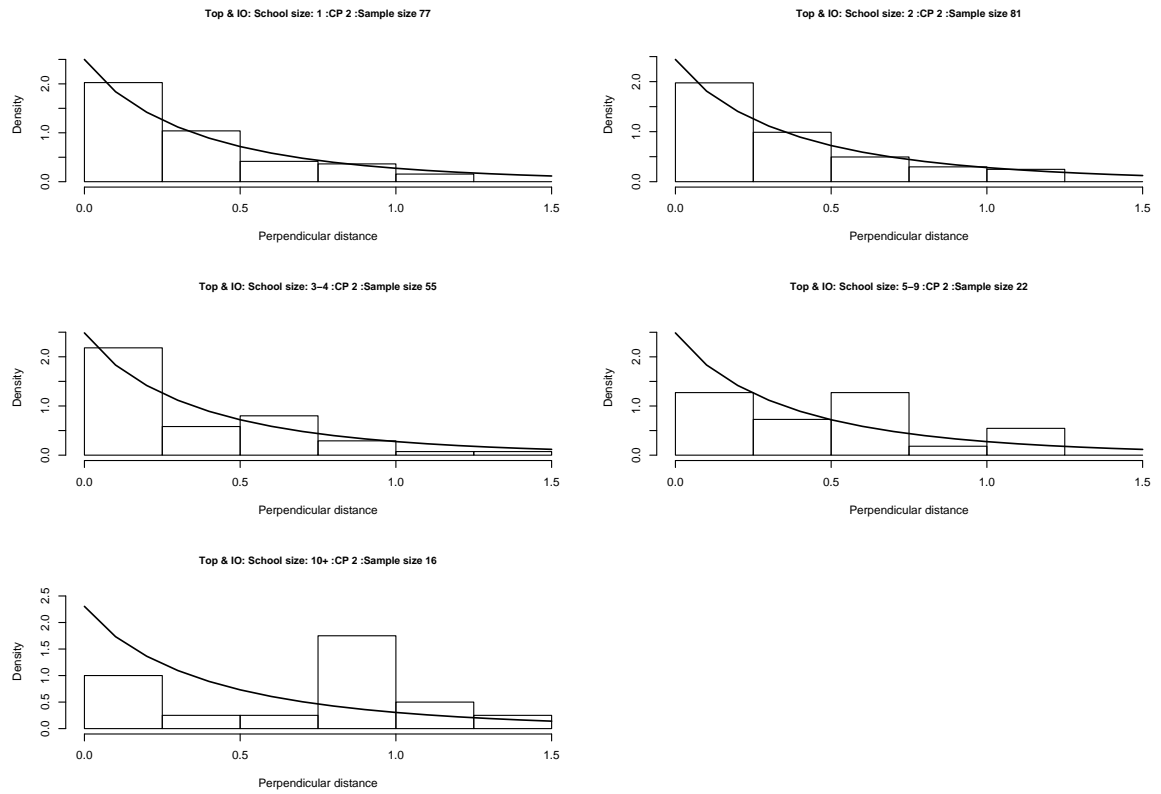


Figure 6. a) The plots of perpendicular distances (n.miles) for the duplicate data (Topman and IO person) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

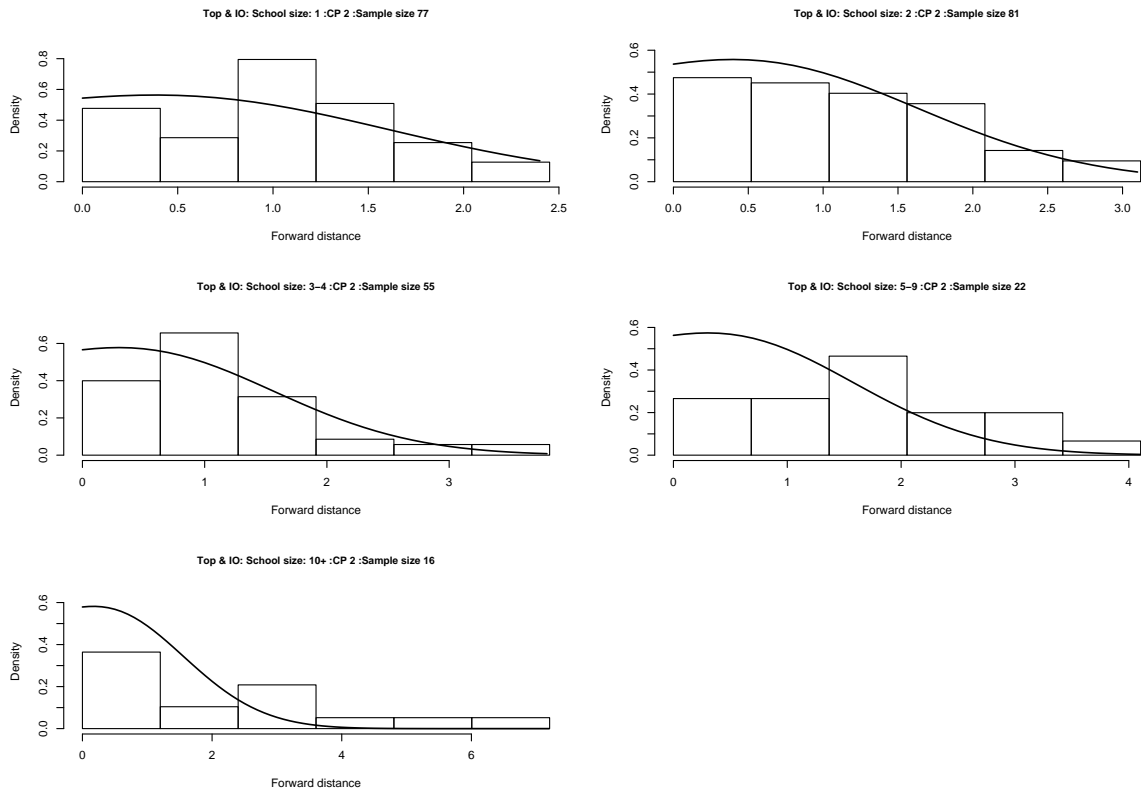


Figure 6. b) The plots of forward distances (n.miles) for the duplicate data (Topman and IO person) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

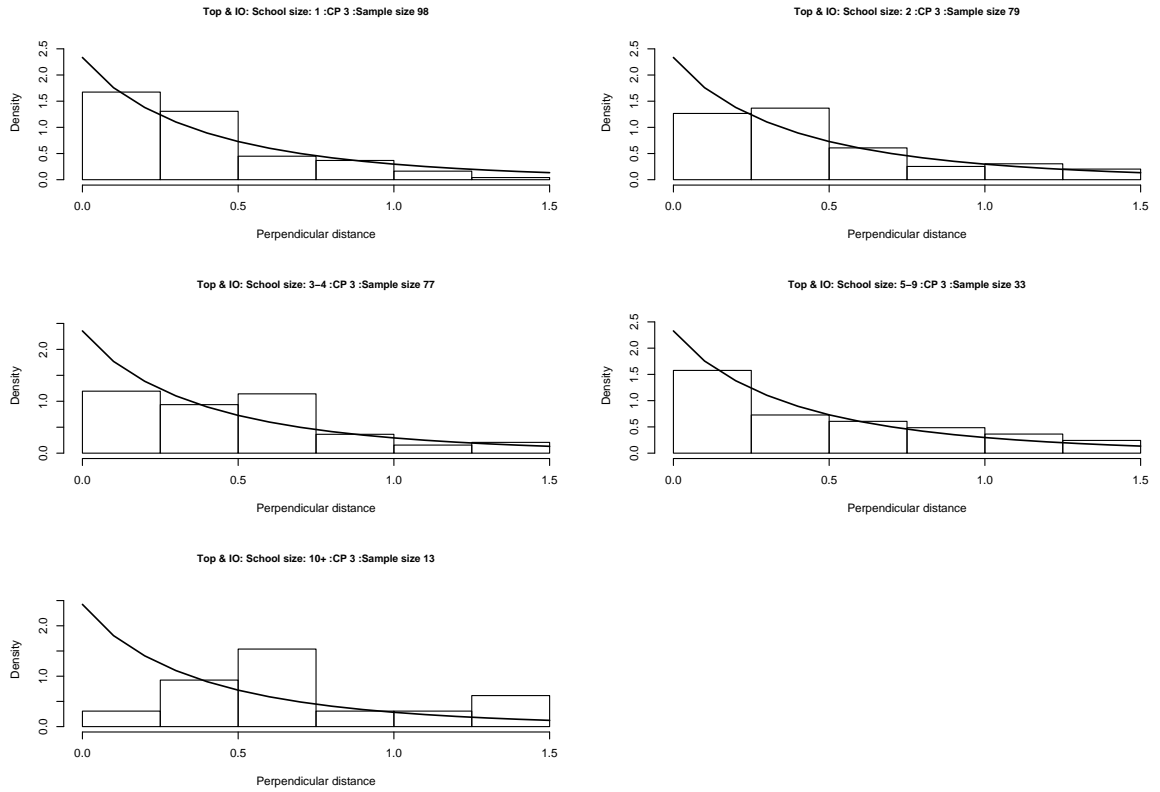


Figure 6. c) The plots of perpendicular distances (n.miles) for the duplicate data (Topman and IO person) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPIII. The histograms denote the observation and the solid lines denote the fitted values.

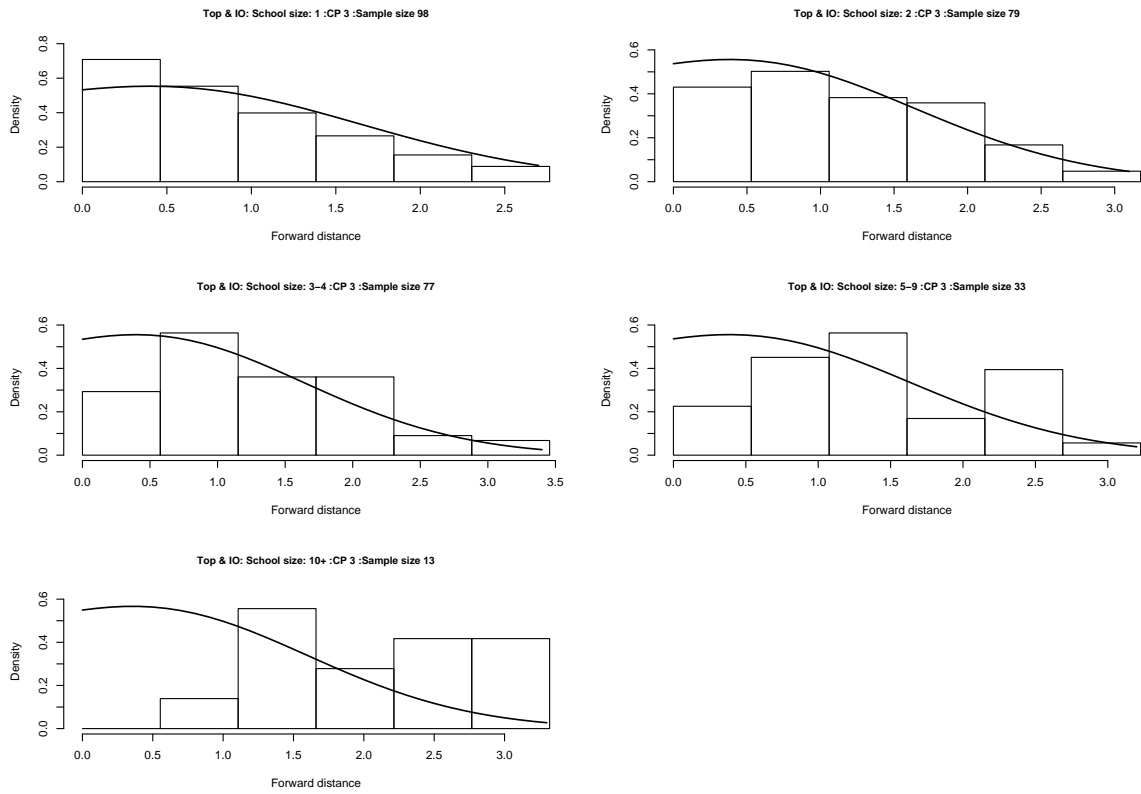


Figure 6. d) The plots of forward distances (n.miles) for the duplicate data (Topman and IO person) in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

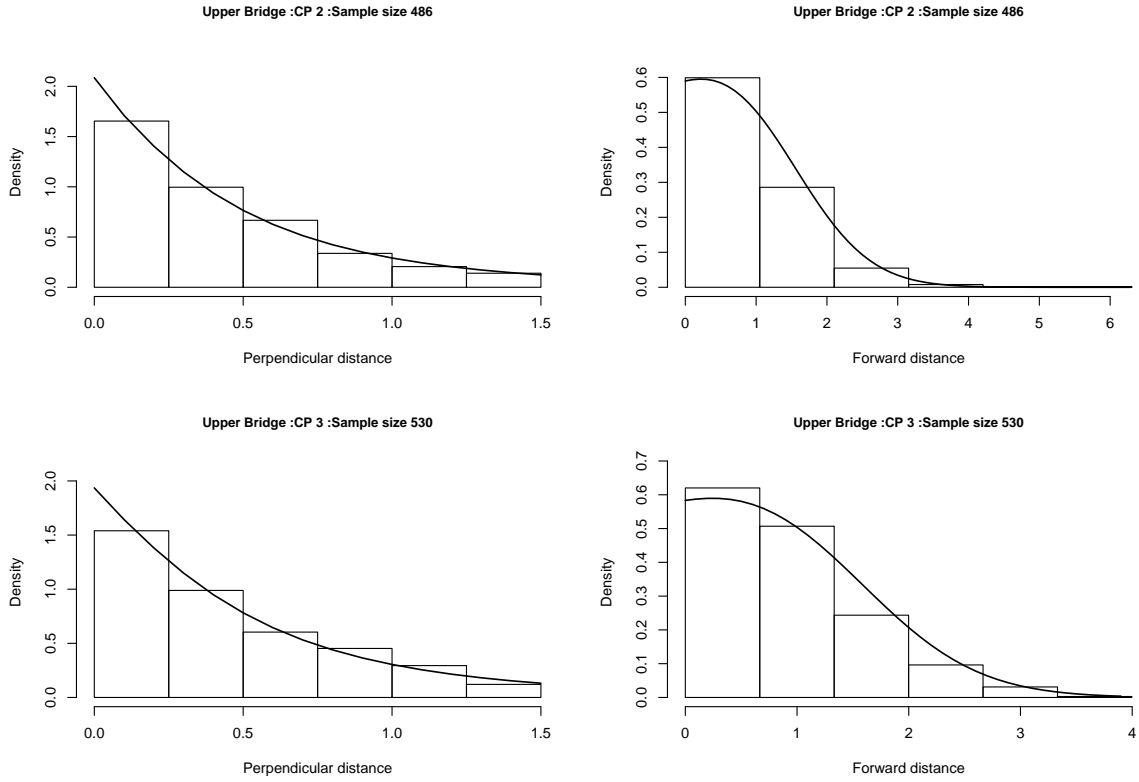


Figure 7. The plots of perpendicular and forward distances (n.miles) for the upper bridge platform in the Passing mode in CP II and CP III. The histograms denote the observation and the solid lines denote the fitted values.

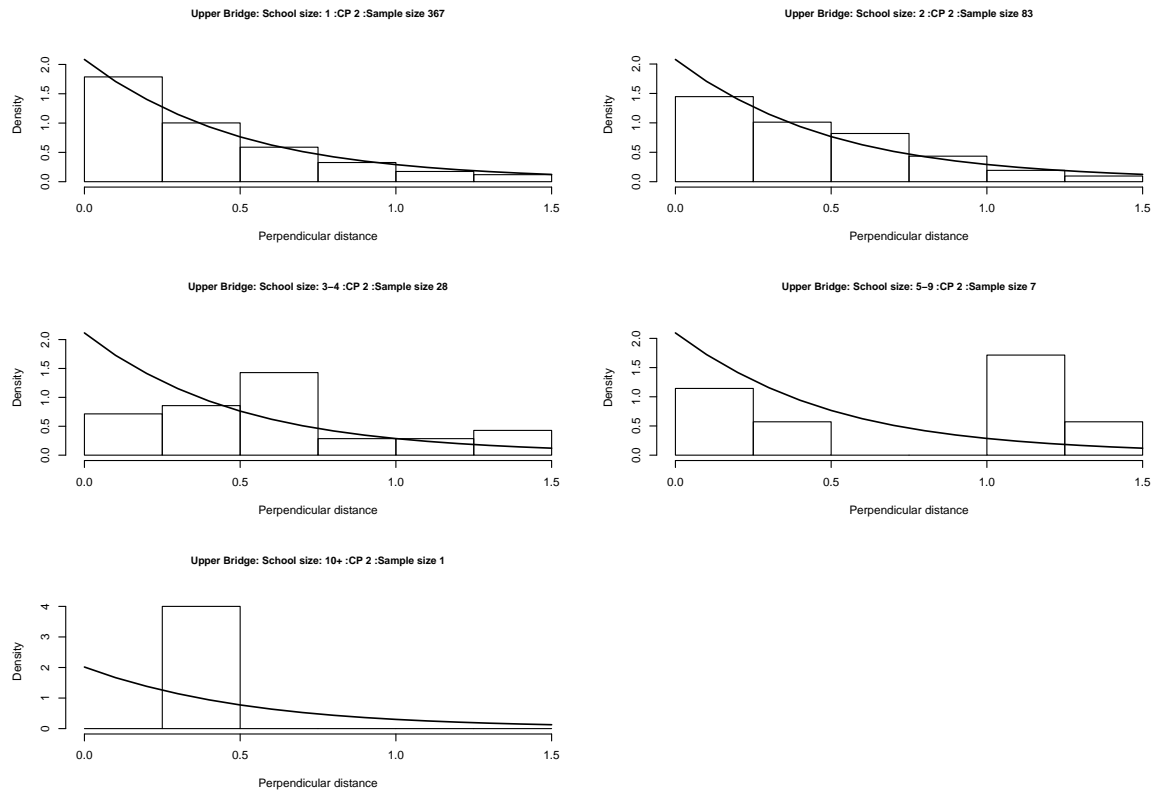


Figure 8. a) The plots of perpendicular distances (n.miles) for the upper bridge platform in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

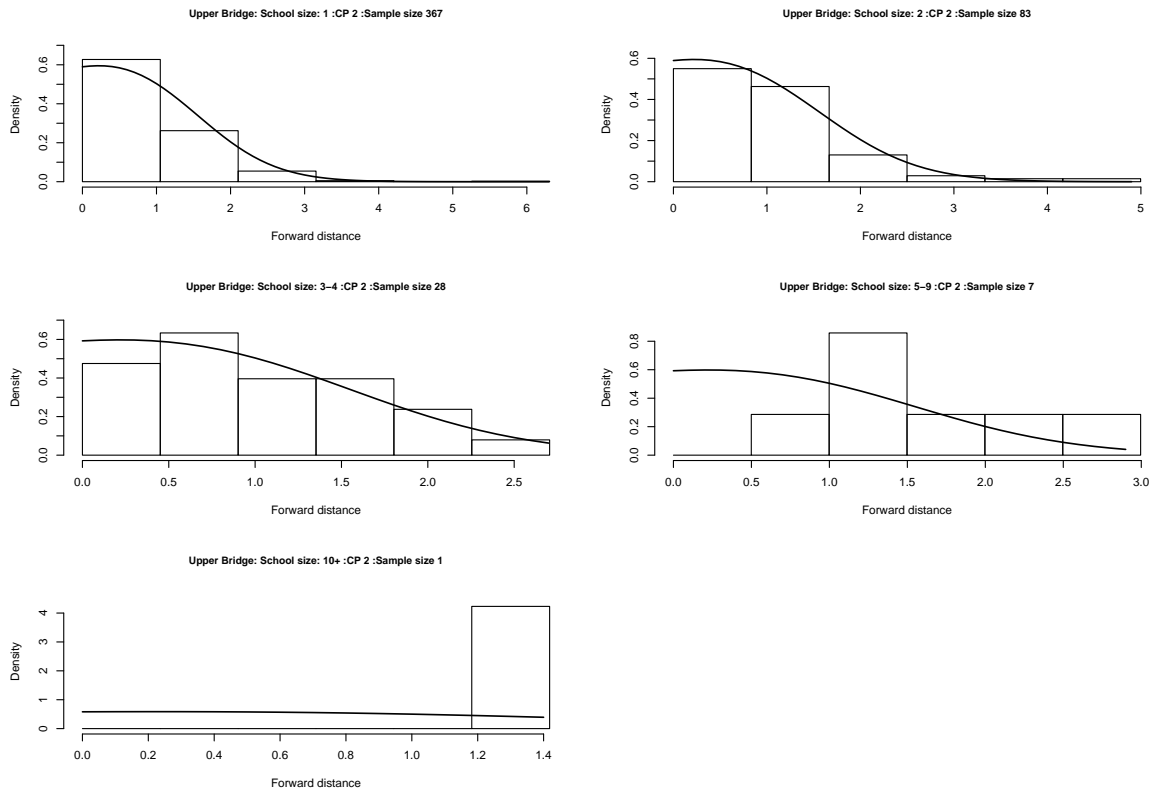


Figure 8. b) The plots of forward distances (n.miles) for the upper bridge platform in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPII. The histograms denote the observation and the solid lines denote the fitted values.

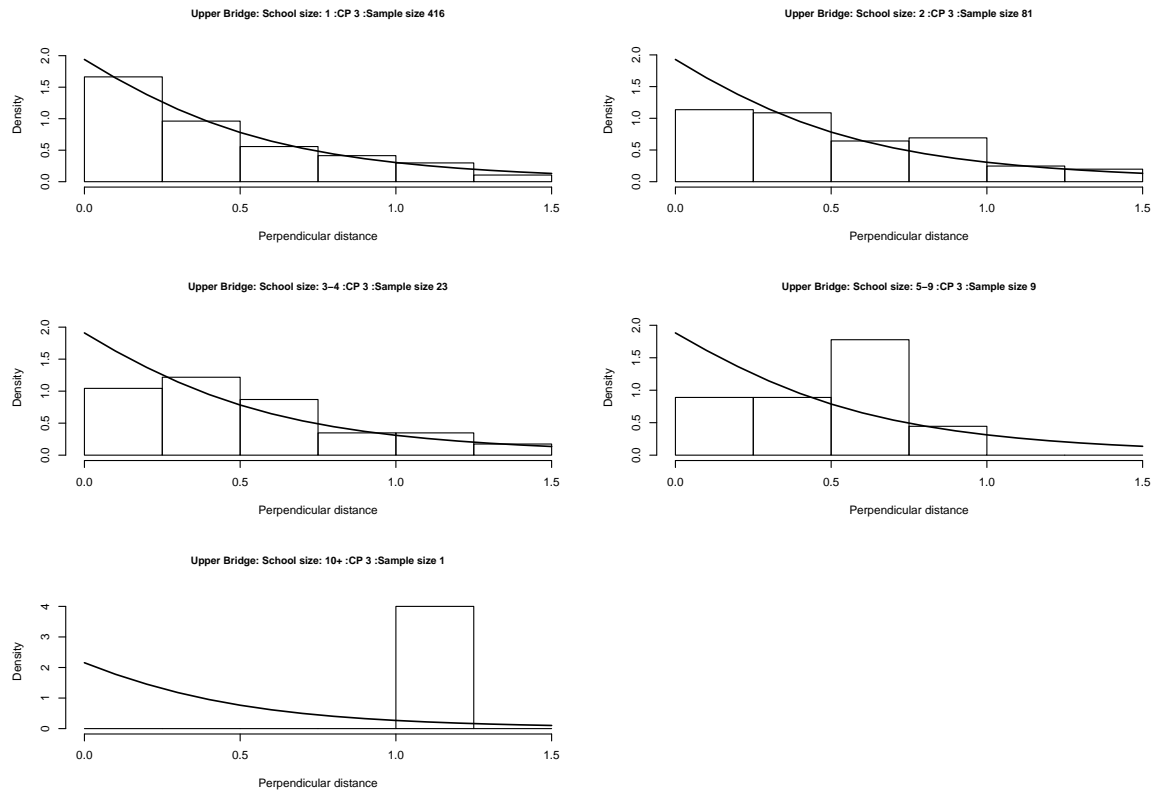


Figure 8. c) The plots of perpendicular distances (n.miles) for the upper bridge platform in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPIII. The histograms denote the observation and the solid lines denote the fitted values.

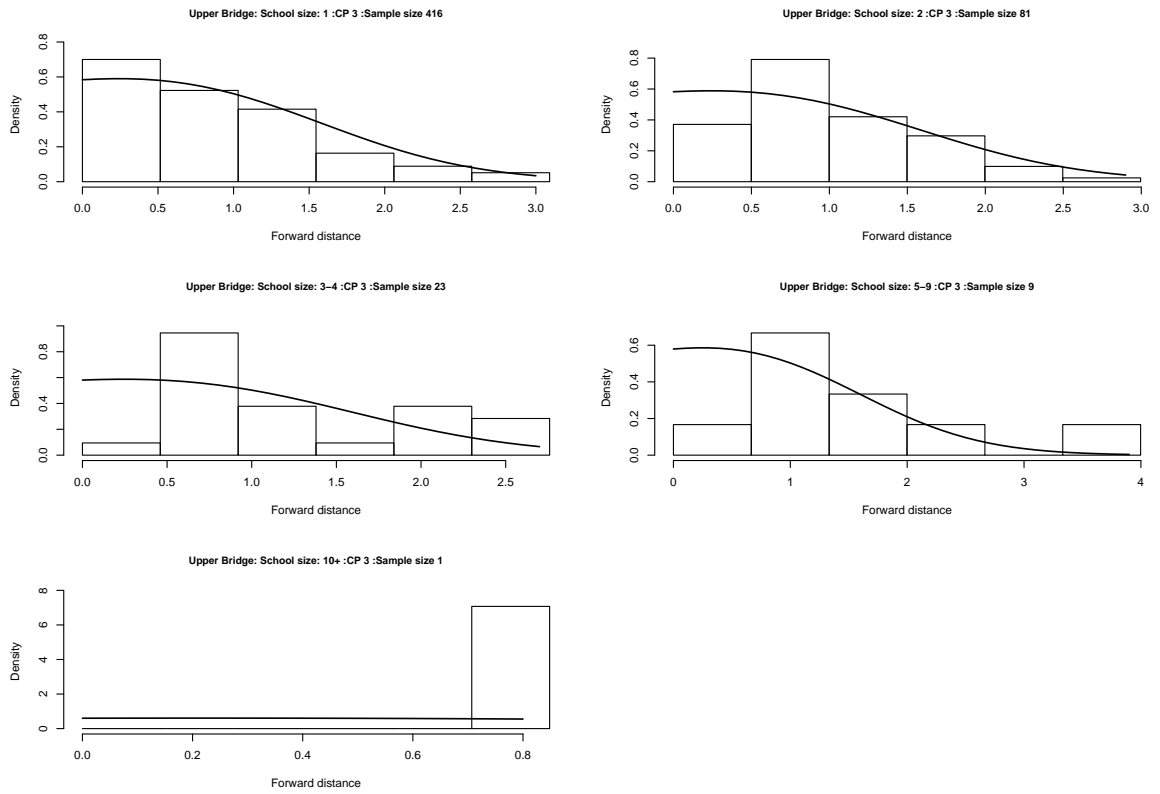


Figure 8. d) The plots of forward distances (n.miles) for the upper bridge platform in the Passing mode by observed school size classes (1, 2, 3-4, 5-9, 10+) in CPIII. The histograms denote the observation and the solid lines denote the fitted values.

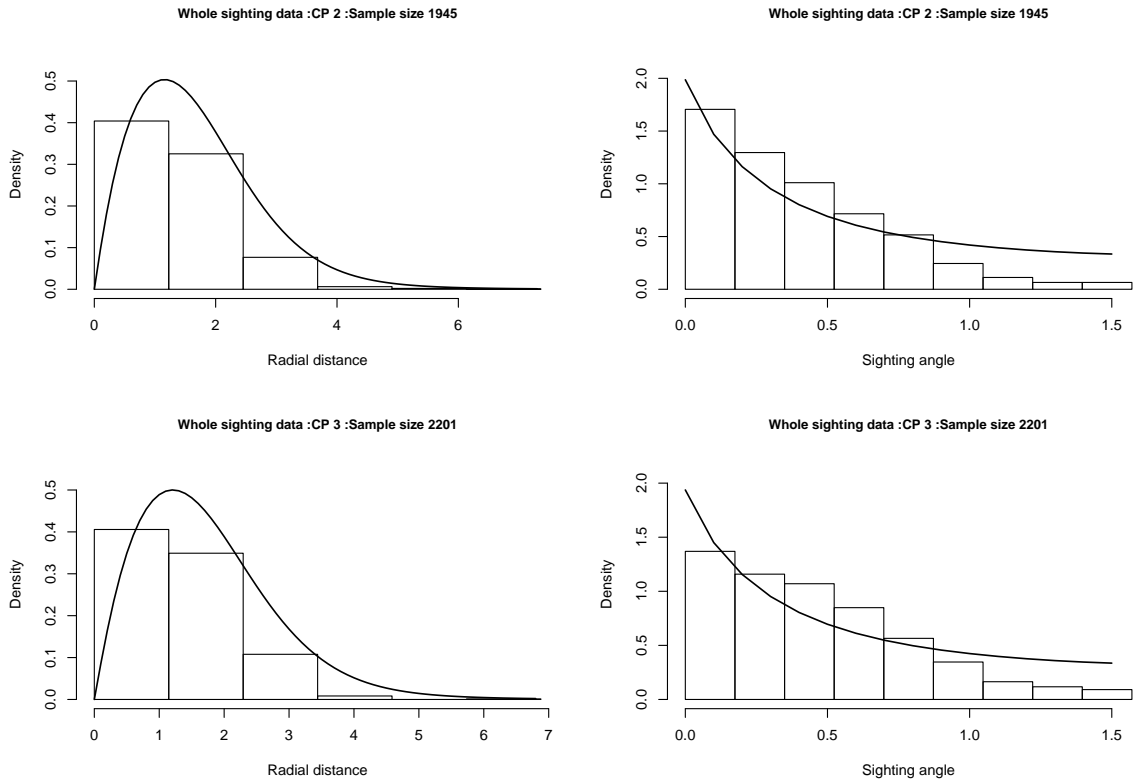


Figure 9. The plots of radial distances (n.miles) and sighting angles (radians) for the whole data in the Passing mode in CP II and CP III. The histograms denote the observation and the solid lines denote the fitted values.

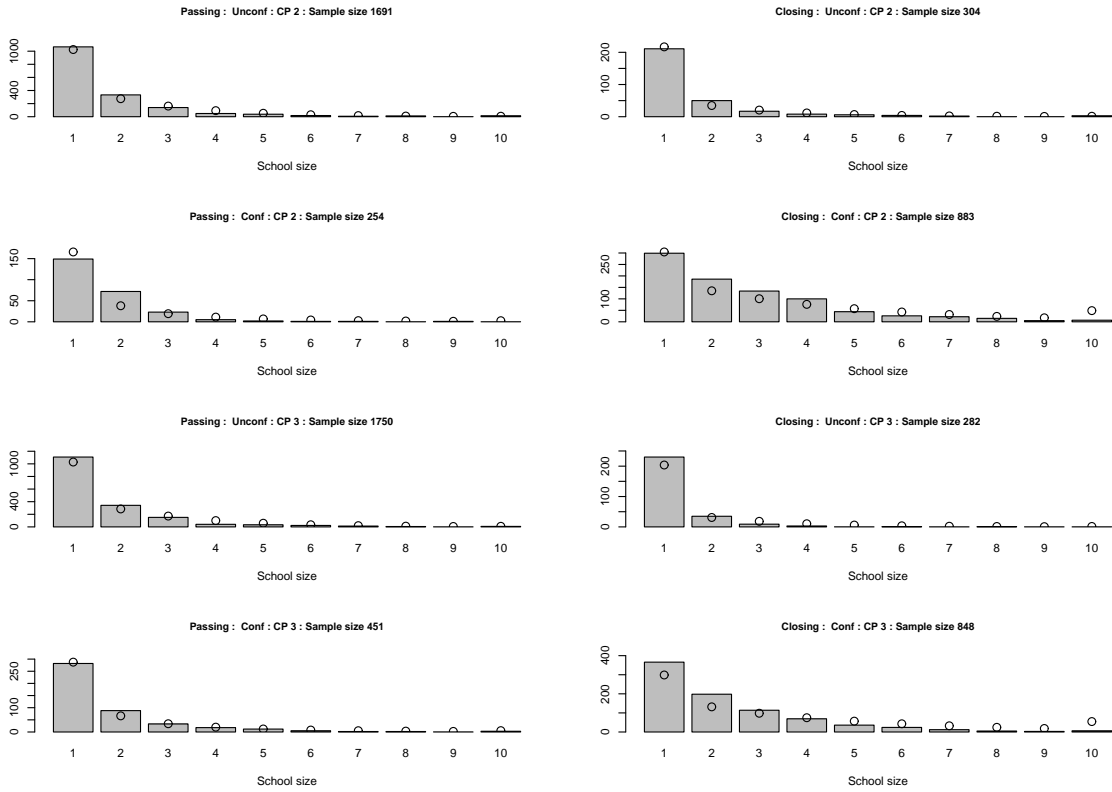


Figure 10. The plots of observed school sizes in CPII and CPIII. The histograms denote the observation and the open circles denote the fitted values.

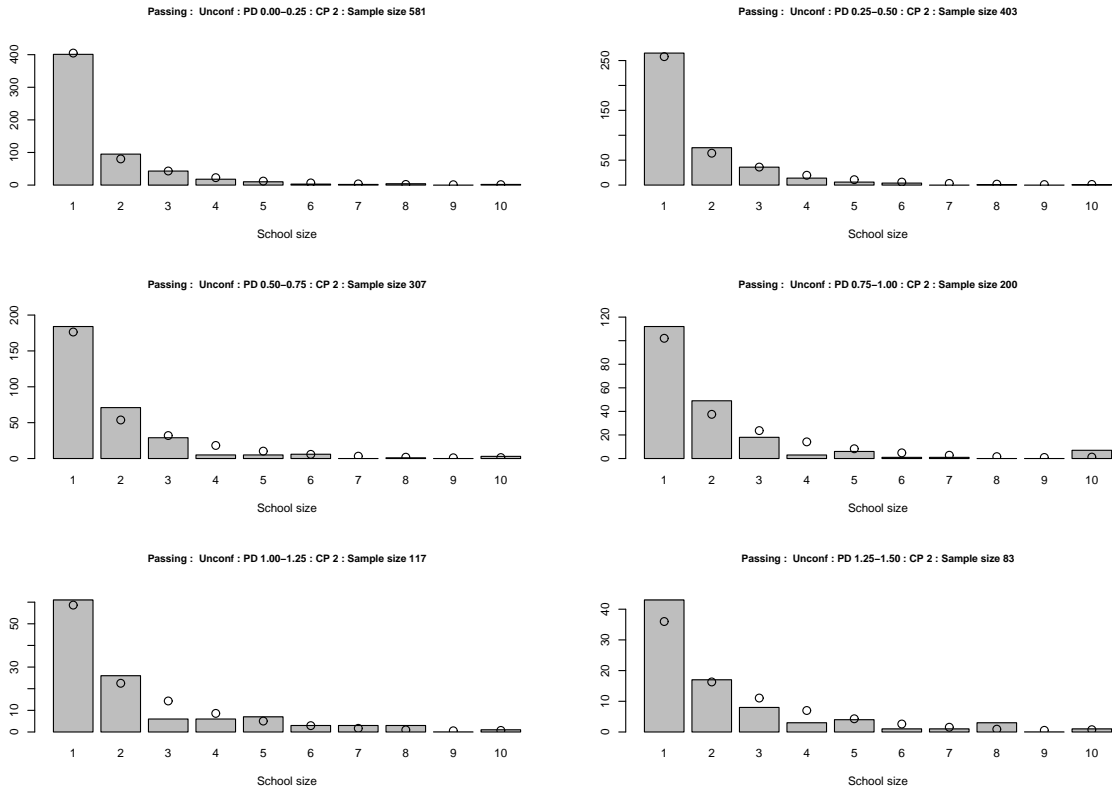


Figure 11. a) The plots of observed unconfirmed school sizes in the Passing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPII. The histograms denote the observation and the open circles denote the fitted values.

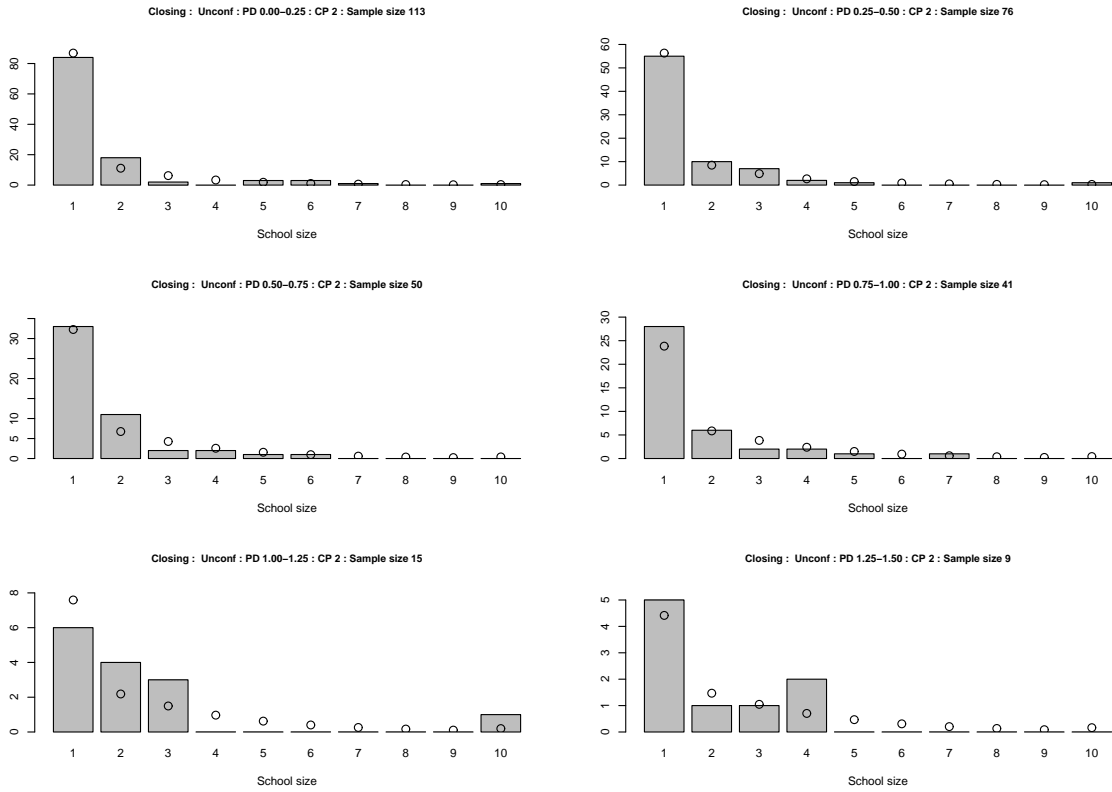


Figure 11. b) The plots of observed unconfirmed school sizes in the Closing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPII. The histograms denote the observation and the open circles denote the fitted values.

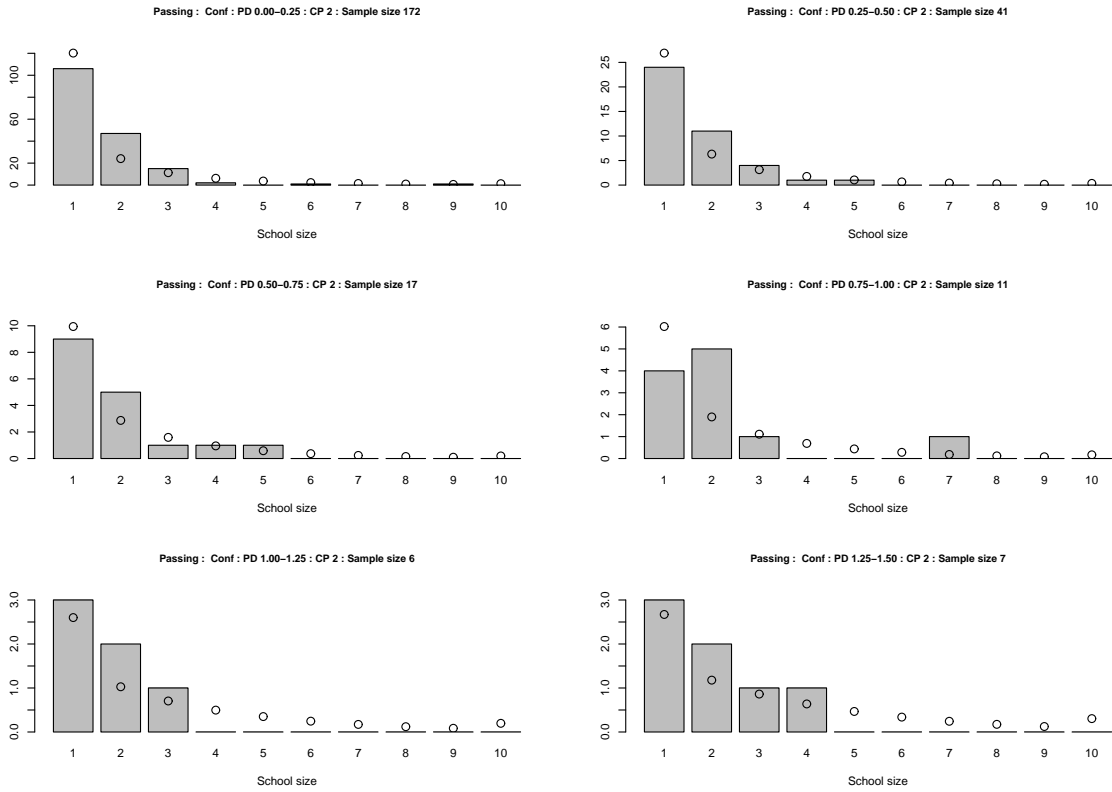


Figure 11. c) The plots of observed confirmed school sizes in the Passing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPII. The histograms denote the observation and the open circles denote the fitted values.

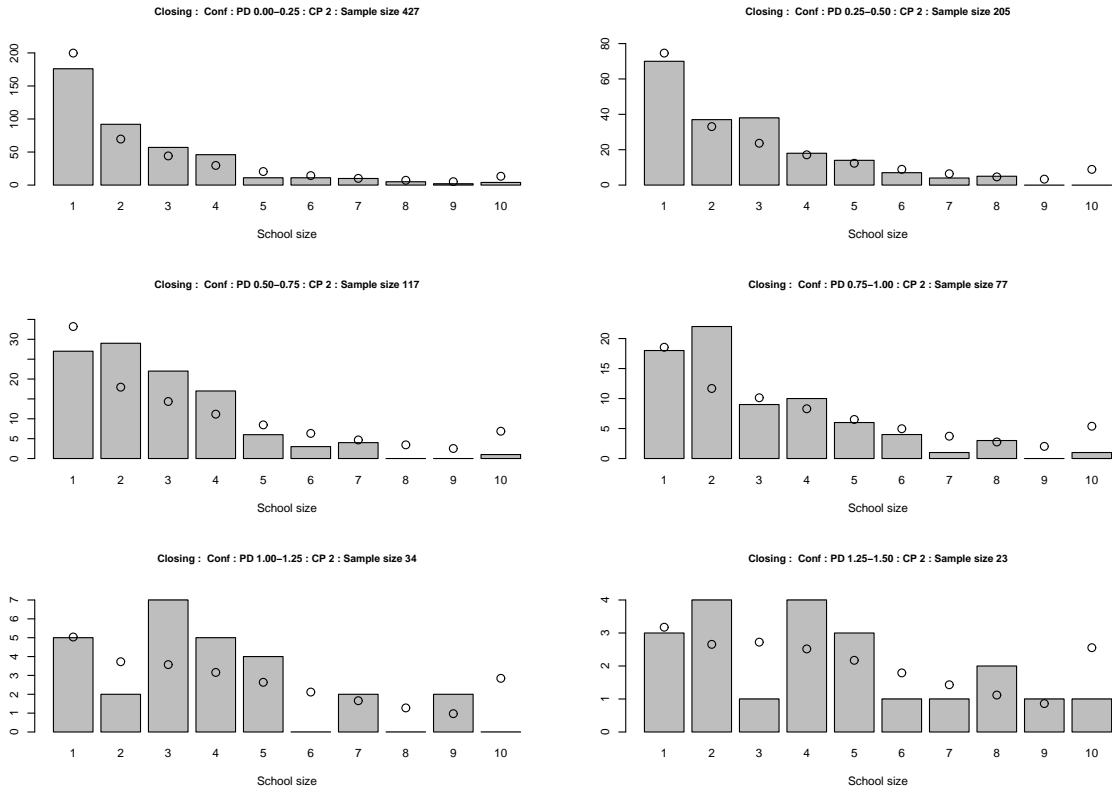


Figure 11. d) The plots of observed confirmed school sizes in the Closing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPIO. The histograms denote the observation and the open circles denote the fitted values.

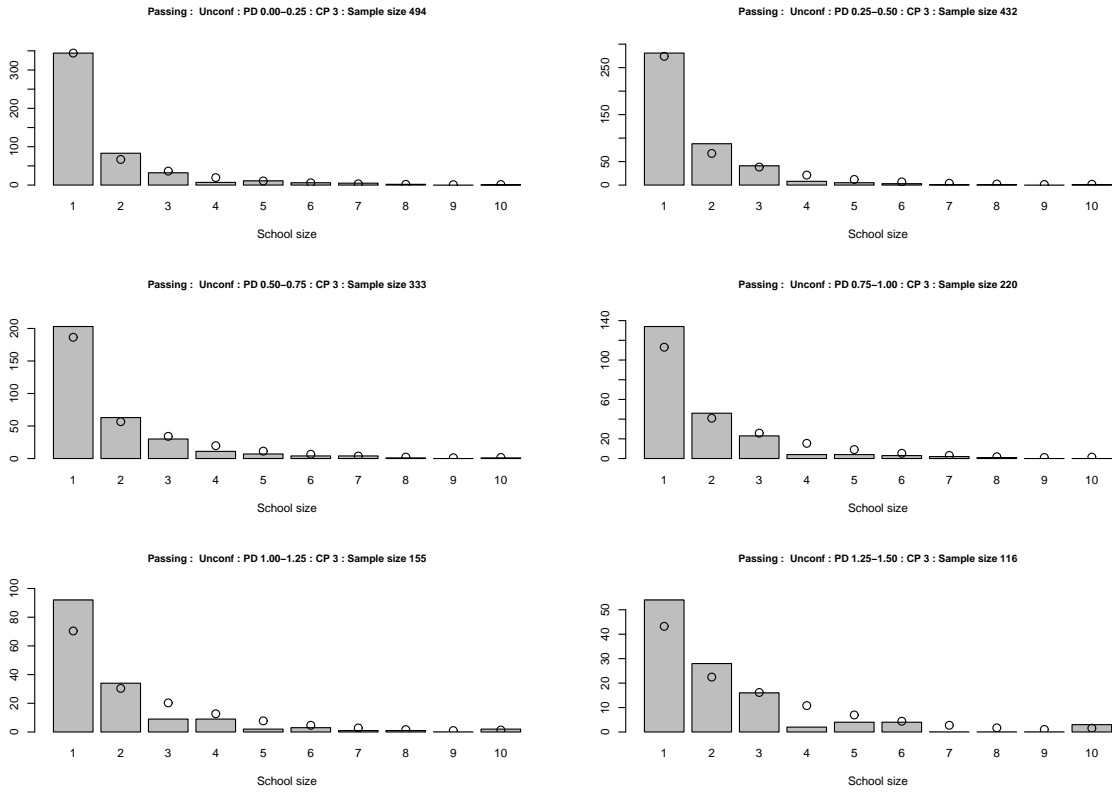


Figure 11. e) The plots of observed unconfirmed school sizes in the Passing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPIII. The histograms denote the observation and the open circles denote the fitted values.

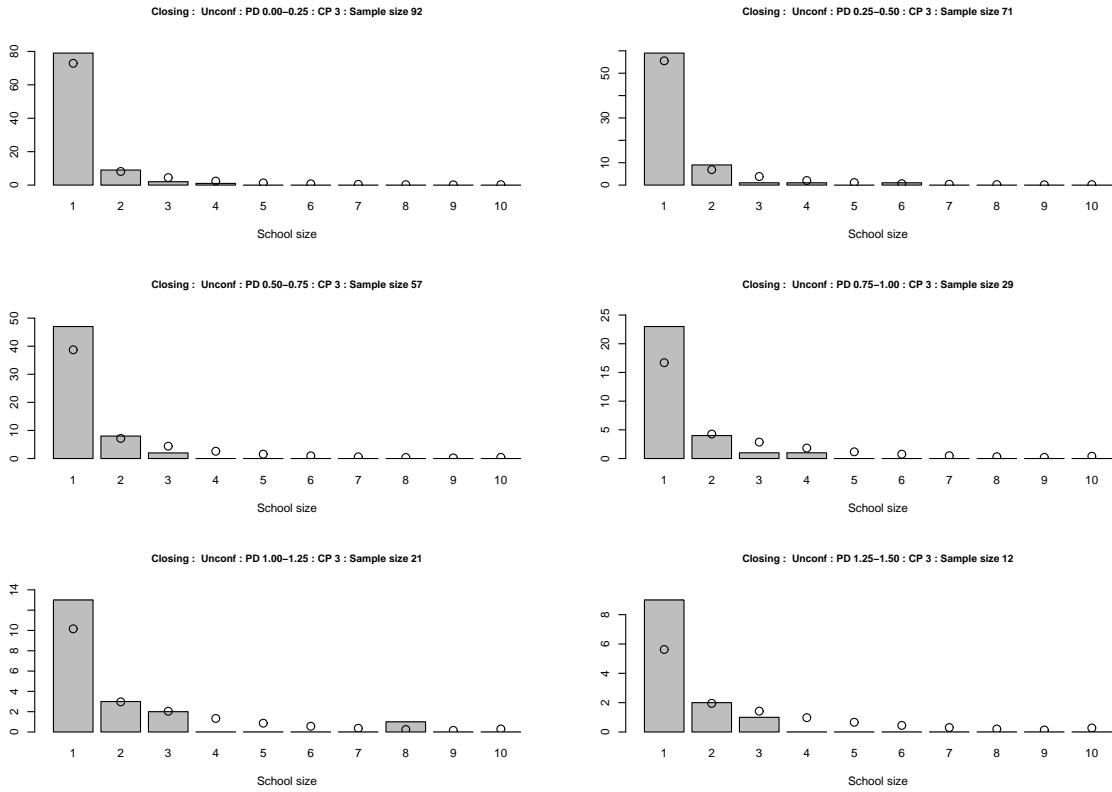


Figure 11. f) The plots of observed unconfirmed school sizes in the Closing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPIII. The histograms denote the observation and the open circles denote the fitted values.

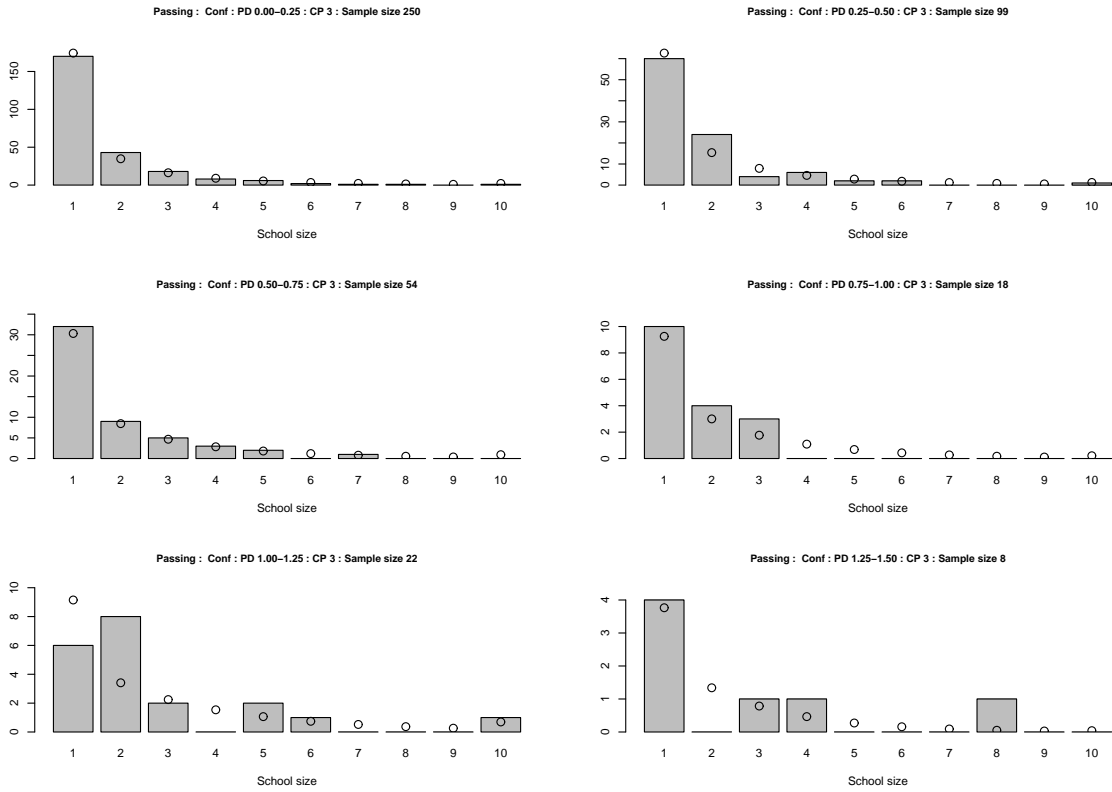


Figure 11. g) The plots of observed confirmed school sizes in the Passing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPIII. The histograms denote the observation and the open circles denote the fitted values.

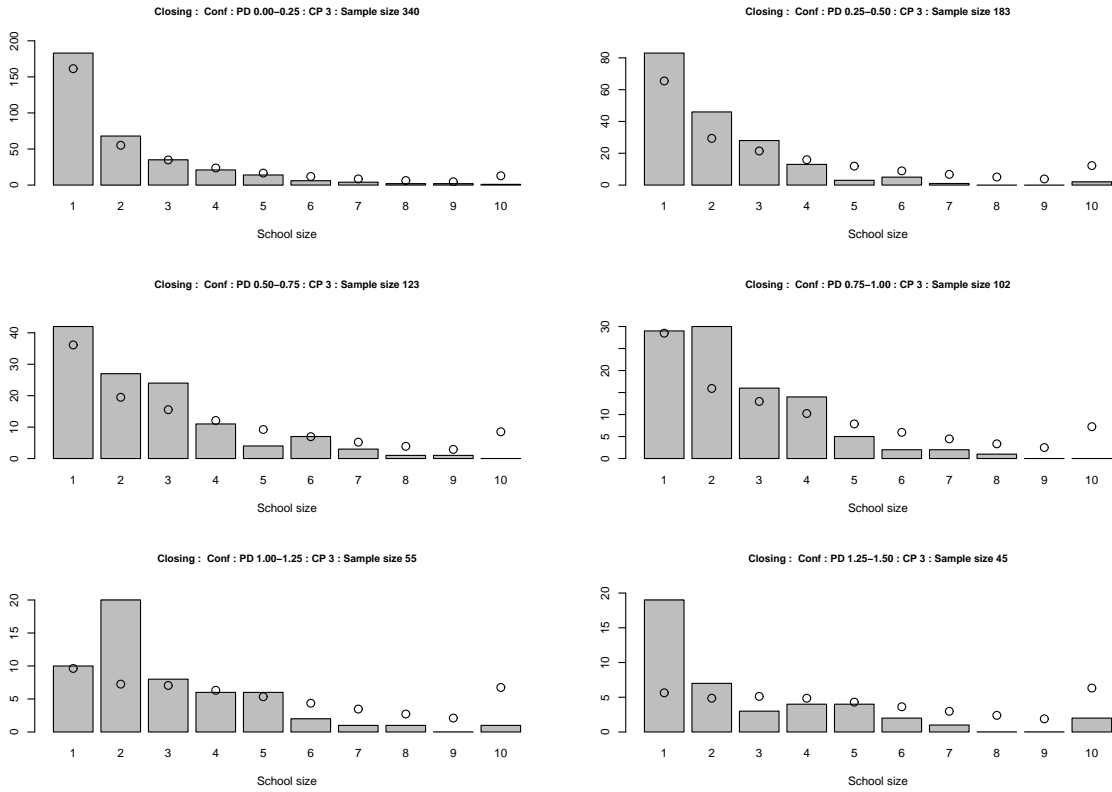


Figure 11. h) The plots of observed confirmed school sizes in the Closing mode by perpendicular distance classes (0-0.25, 0.25-0.5, ... , 0.125-0.15) in CPIII. The histograms denote the observation and the open circles denote the fitted values.