**GRID CELL COUNTS (Siniff and Tester, 1965)**

Lay a grid of squares over the observed locations. Tabulate the number of locations that fall in each grid cell. The home range is the area of the cells with non-zero counts.

In this example, each cell is 1 areal unit so, the home range is the sum of all non-zero units or 10 areal units.
Advantages:
1) Very easy to implement

Disadvantages:
1) Sensitive to cell size of the grid; too large and you grossly overestimate area, too small and you underestimate area and exacerbate the other problems
2) Sensitive to positioning of the grid
3) Sensitive to sampling intensity – frequency of sampling and grid size contribute to (dis)jointedness of the areas
4) Ignores varying utilization of different parts of the home range

Extensions:

Siniff and Tester (1965) control disjointedness by using the time series of points. Any cells crossed by a straight line connecting two temporally adjacent time points are added to the total area. The problem is that the time period between observations has a major influence on the likelihood of the animal moving in a straight line between locations!
In this case, we almost doubled the area by connecting the observed locations.

White and Garrott (1990) point out that this method does not provide a way to calculate a \((1 - \alpha)100\%\) home range but they describe an approach. Plot the cumulative area against the cumulative number of points. The area at which \((1 - \alpha)100\%\) of the observed locations are included represents the \((1 - \alpha)100\%\) area estimate.