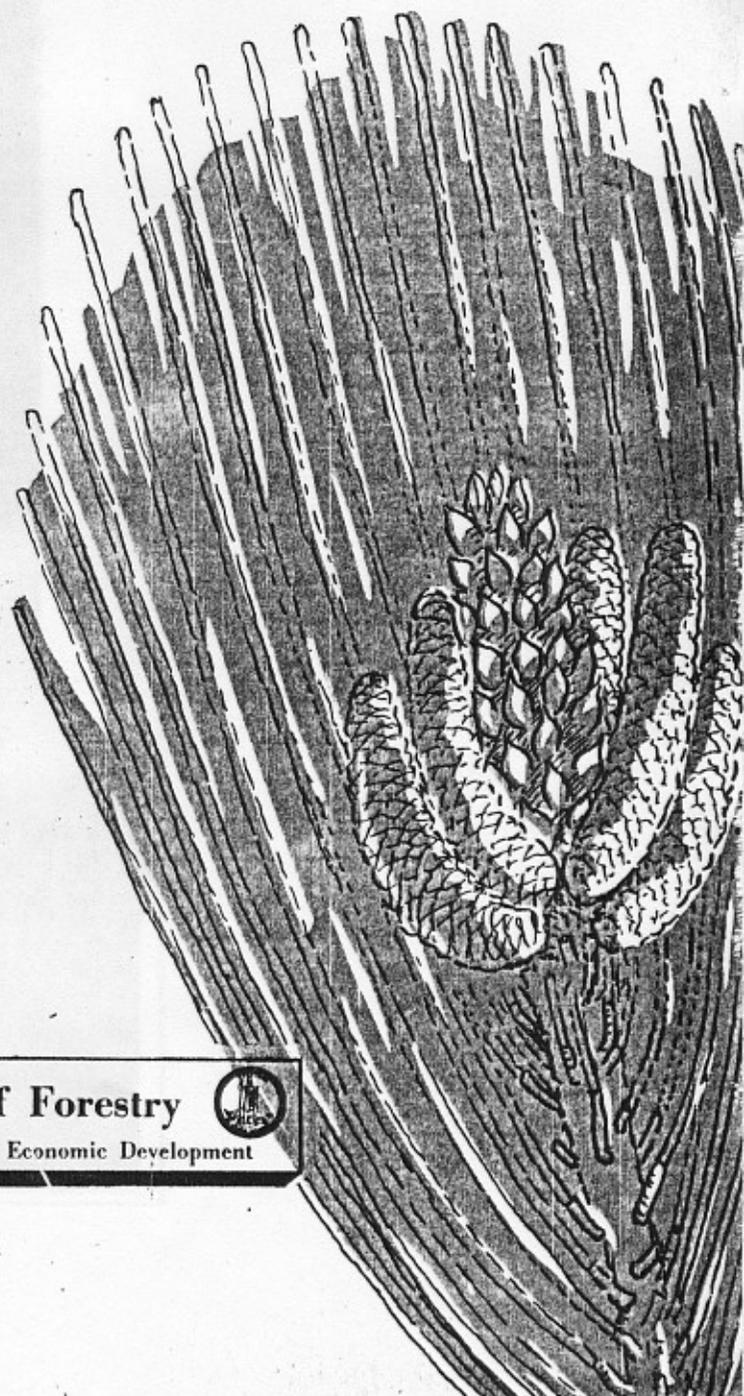


SAVE

A SHORTLEAF and LOBLOLLY PINE FLOWERING PHENOLOGY STUDY



 Virginia Division of Forestry 
Department of Conservation and Economic Development

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Introduction

In production type seed orchards the importance of different clones being in flowering phase with one another cannot be overstressed. A clone completely out of flowering phase with all other clones will, in all likelihood, be rogued from the orchard for this reason alone. Therefore, it appears to be of fundamental importance that flowering phenology for seed orchard clones be determined as soon as practicable.

It was with the above in mind that the Virginia Division of Forestry initiated a flowering phenology study in Spring, 1967. This included all shortleaf and loblolly pine clones established in the seed orchard which were flowering at that time. The report which follows describes this study and graphically summarizes the flowering phenology data obtained.

The Study

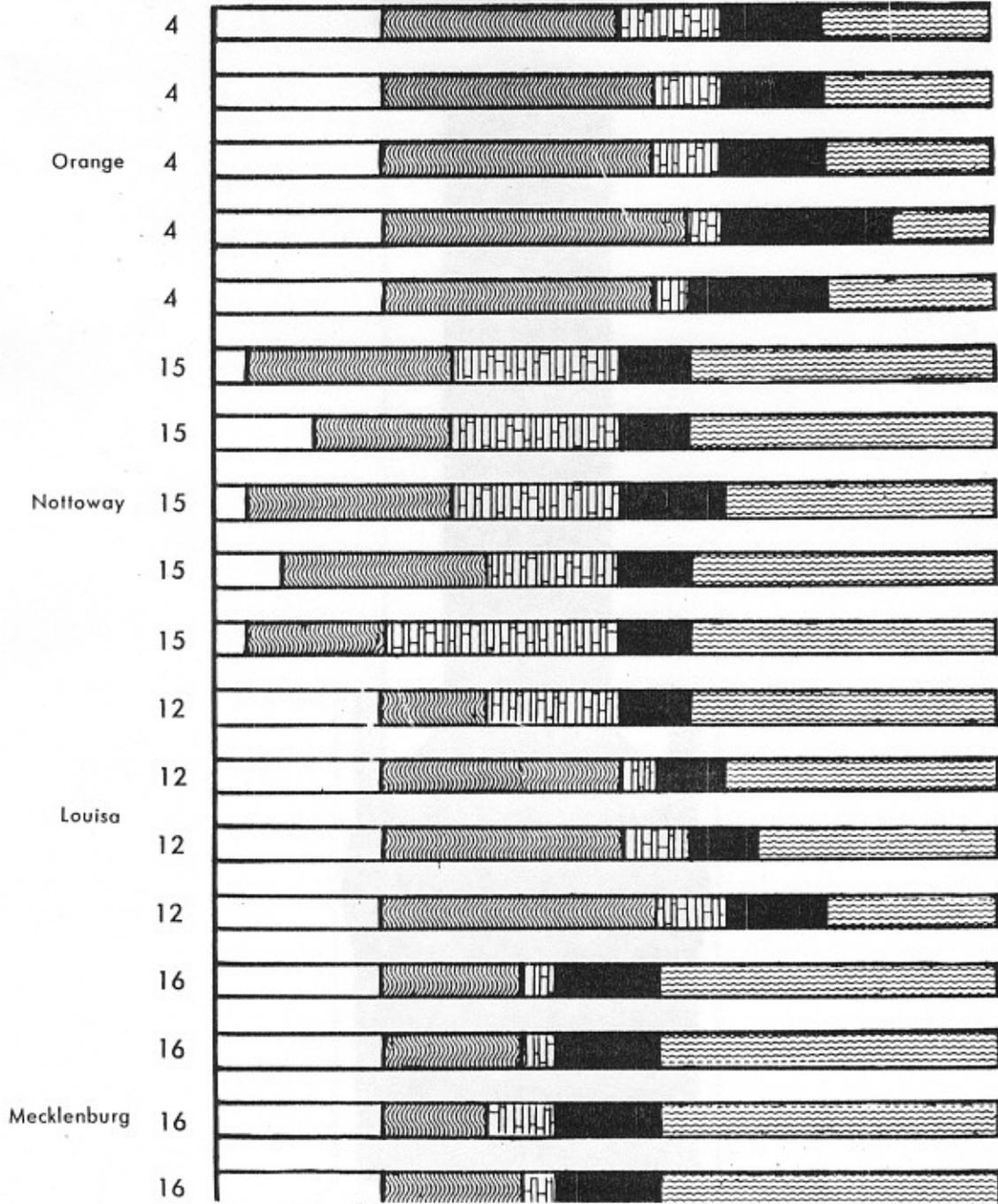
The study site was at the Virginia Division of Forestry seed orchard which is located approximately 25 miles east of Richmond, Virginia in New Kent County, latitude 37° 30' and longitude 77°.

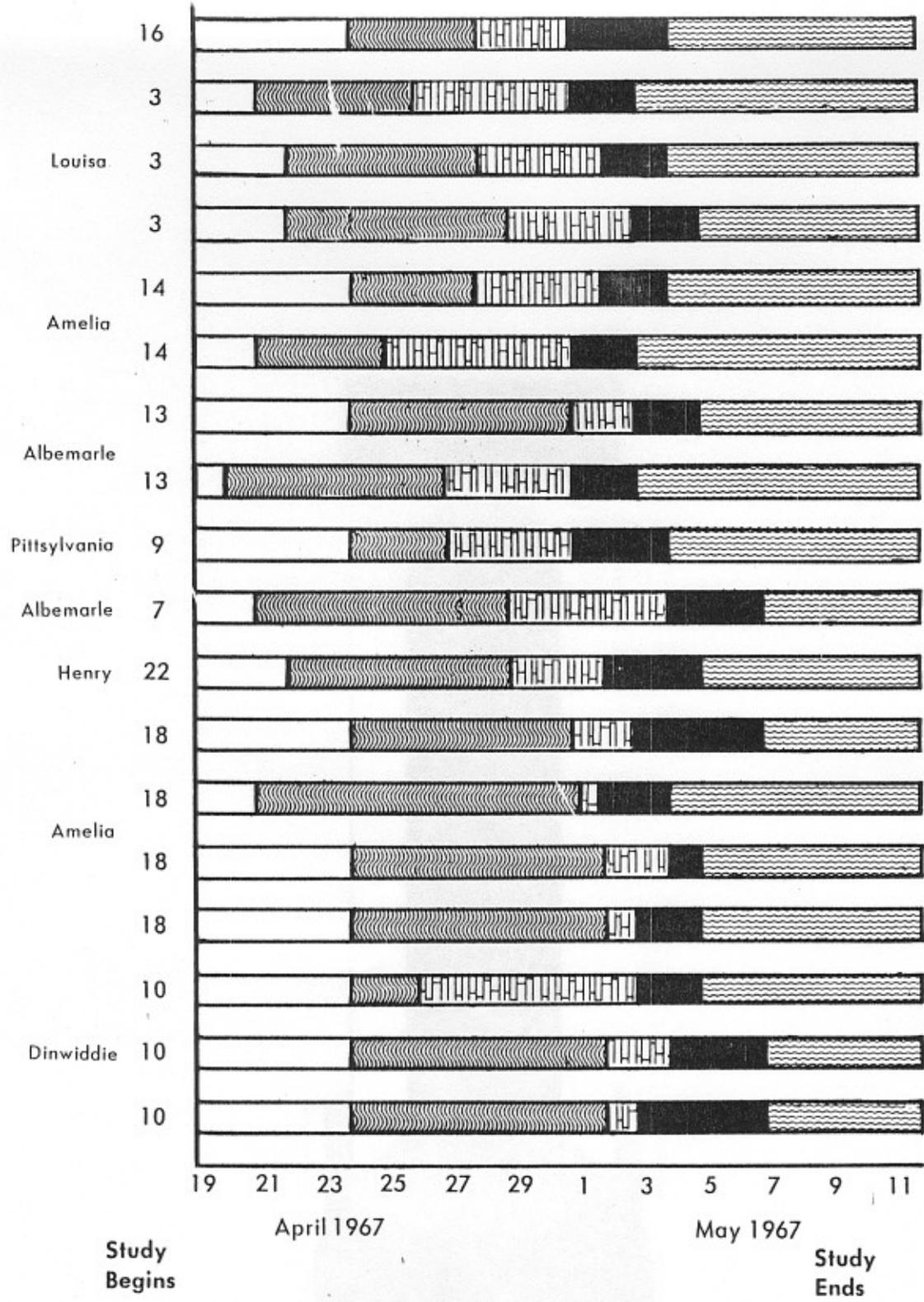
All flower-producing clones at the time of the study were included; and whenever possible, four ramets per clone were used for observation purposes. The following table shows the number of clones and ramets by species:

	<i>Piedmont</i>	<i>Coastal Plain</i>		
	<i>Loblolly</i>	<i>Loblolly</i>	<i>Shortleaf</i>	<i>Totals</i>
(Female Flowers)				
No. Clones	11	10	10	31
No. Ramets	27	17	25	69
(Male Flowers)				
No. Clones	16	14	12	42
No. Ramets	43	38	36	117

The shortleaf pine ramets were 4 and 5 year old grafts and ranged in height from 10 to 16 feet and the loblolly pine ramets were 5 to 7 year old grafts and ranged in height from 18 to 25 feet.

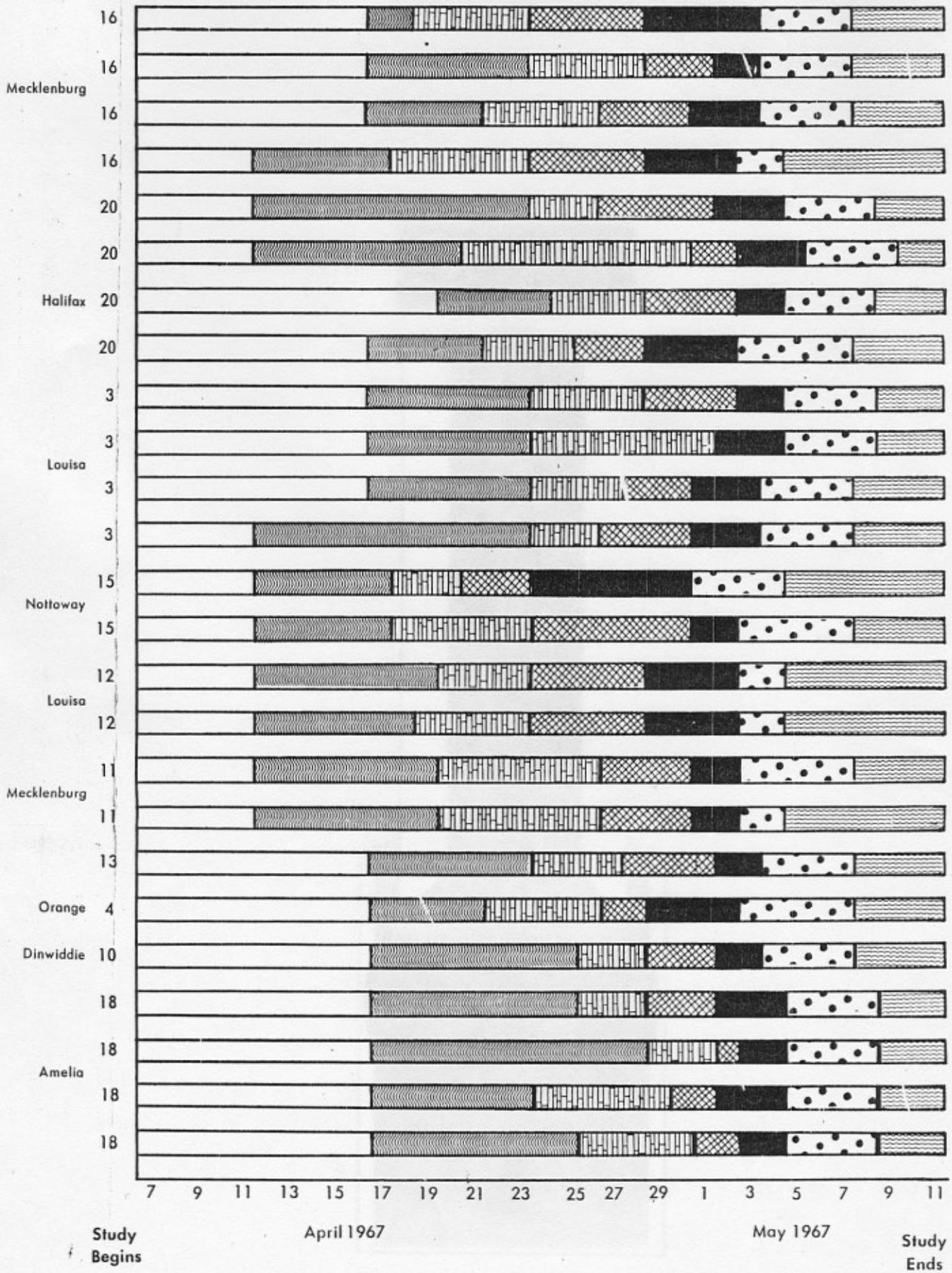
CLONE





Male

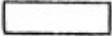
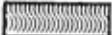
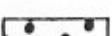
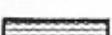
CLONE



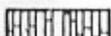
Female

LEGEND

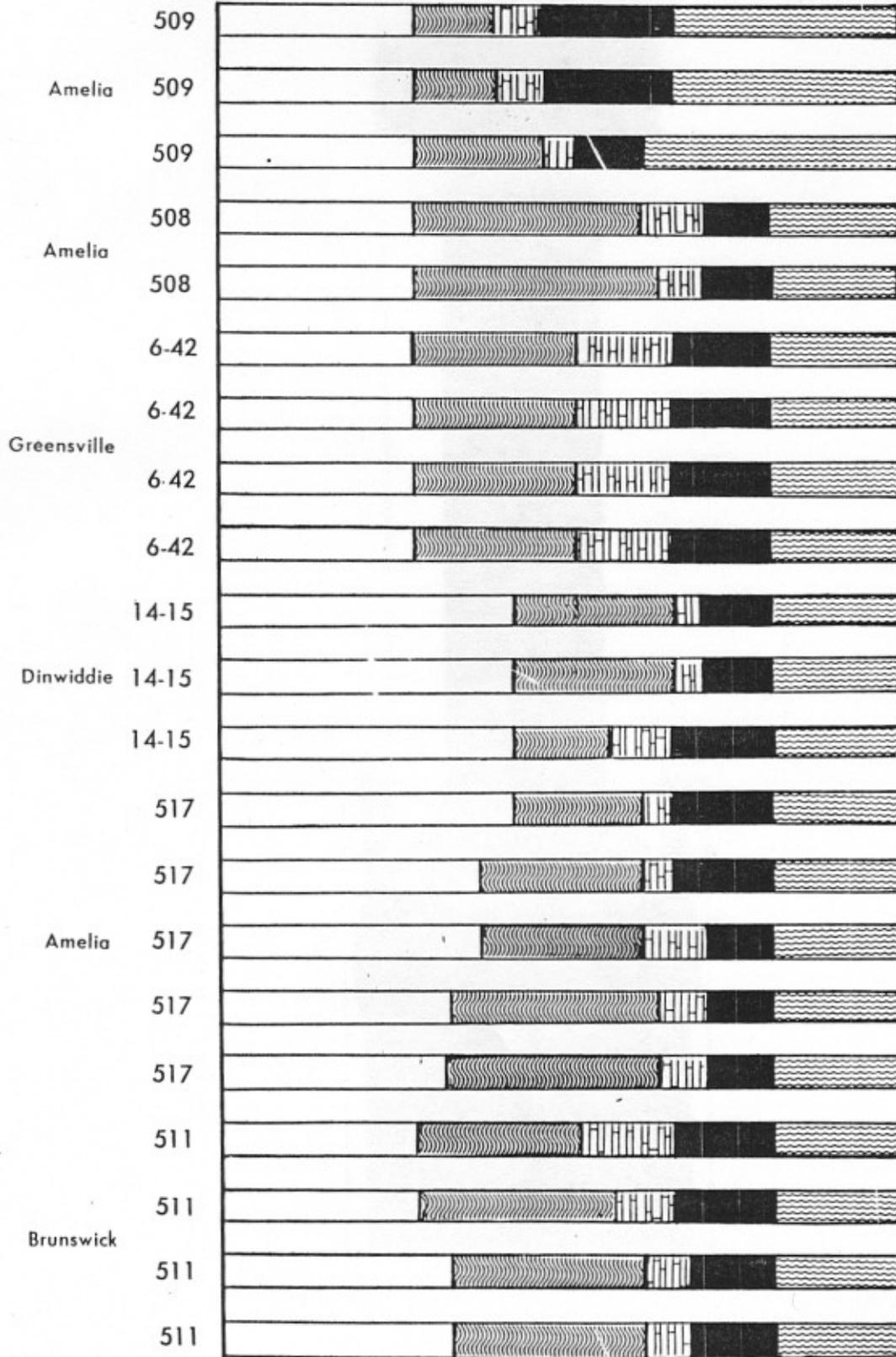
FEMALE

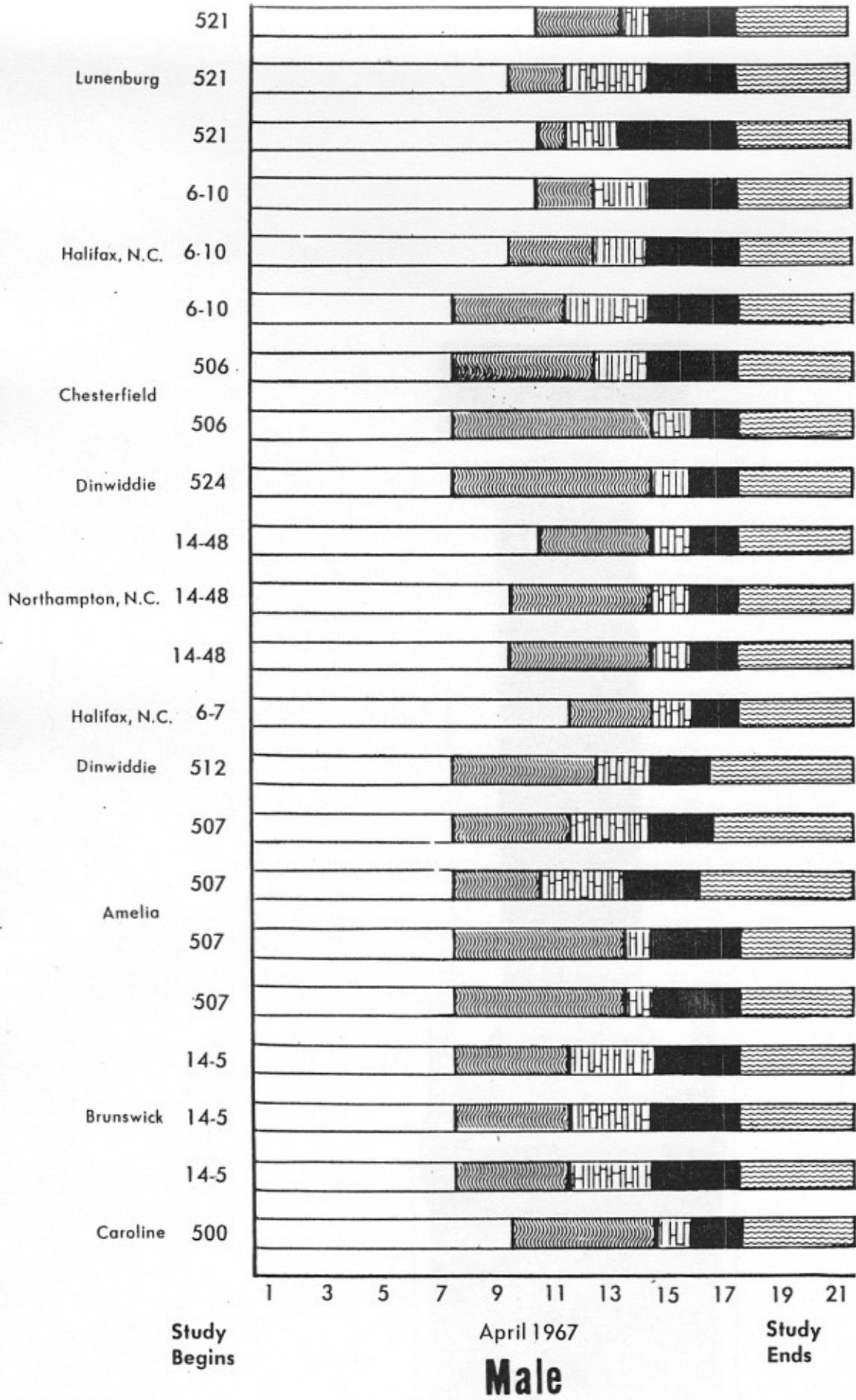
-  Buds Swollen, Pregnancy Suspected
-  Flowers Emerge In Flower Scales
-  "Red Tips"
-  Flowers Partially Receptive
-  Flowers Fully Receptive
-  Beginning To Close, Partially Receptive
-  Flowers Completely Closed

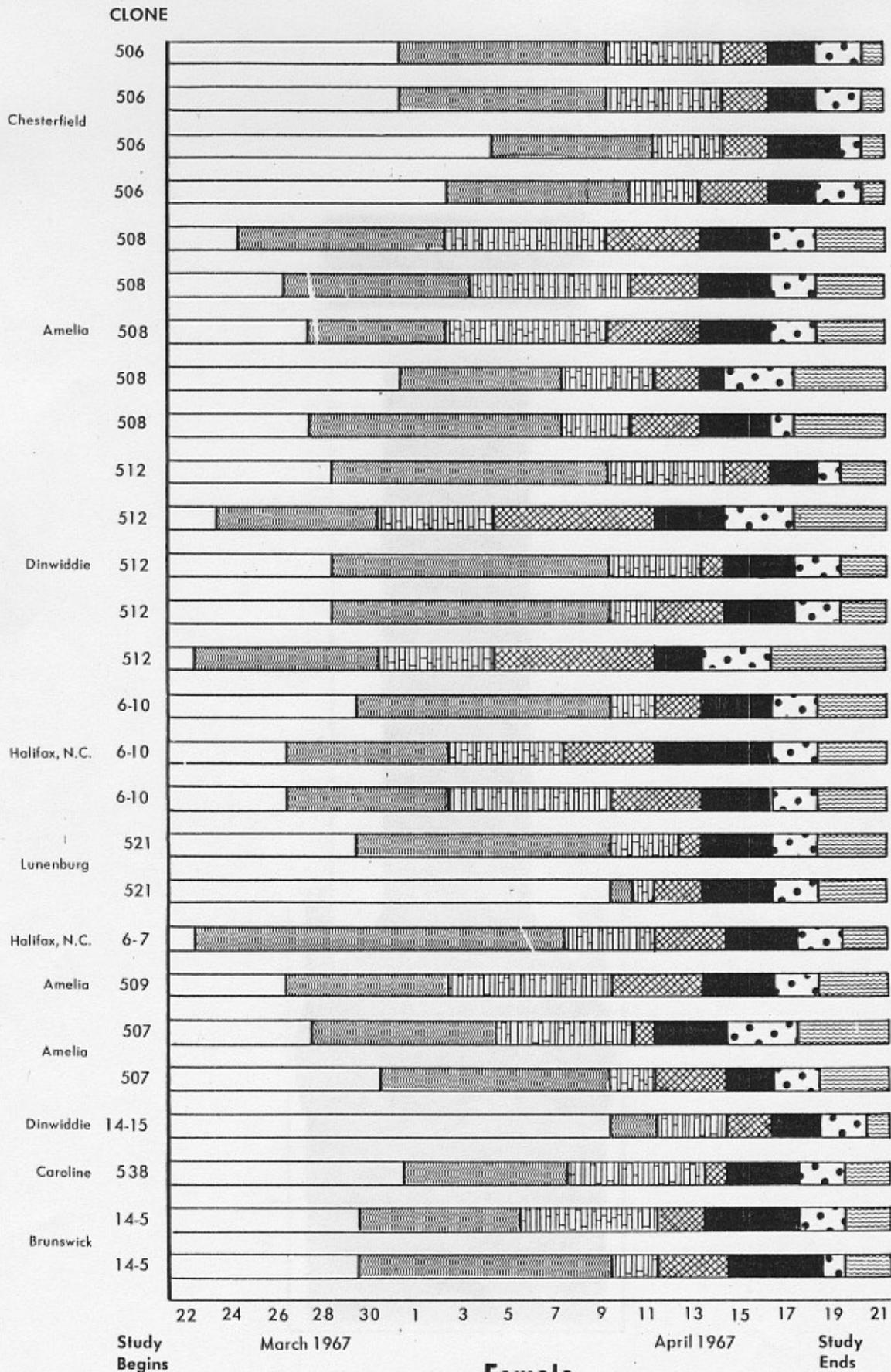
MALE

-  Catkin Clusters Previously Formed
-  Catkin Enlargement
-  Slight Pollen Shed
-  Maximum Pollen Shed
-  Majority Of Pollen Gone

CLONE

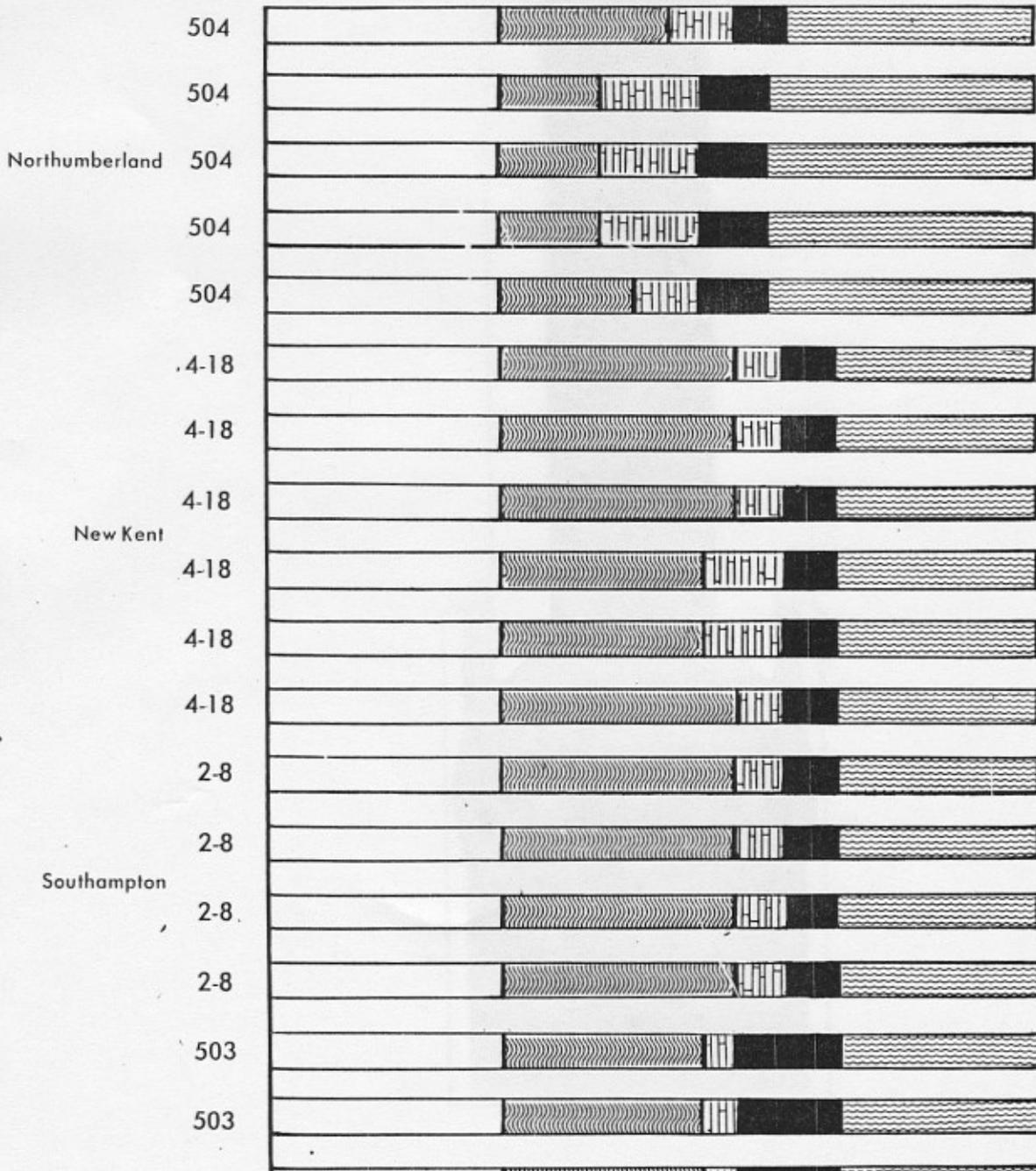






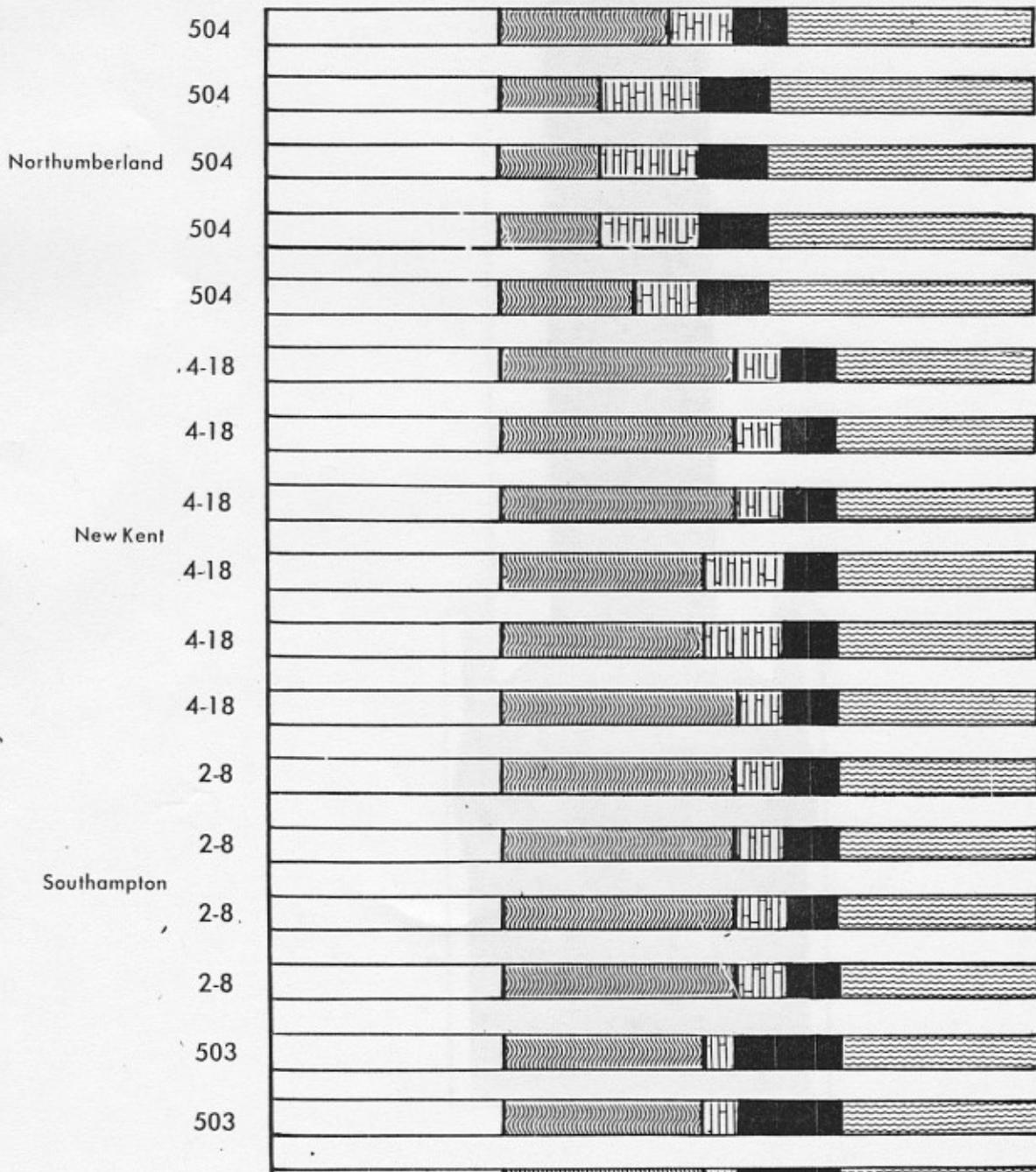
COASTAL PLAIN

CLONE

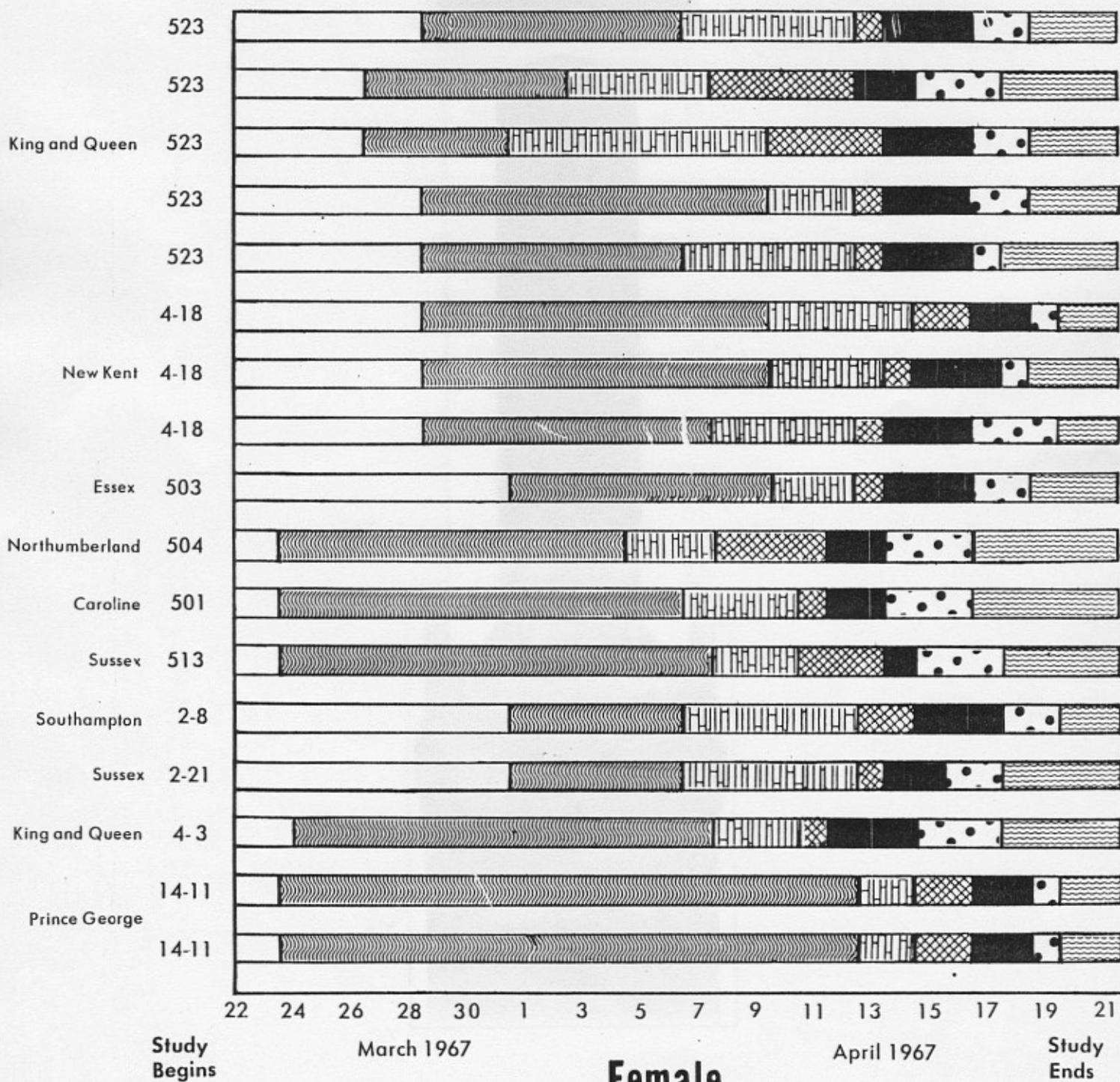


COASTAL PLAIN

CLONE



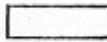
CLONE



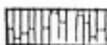
LEGEND

FEMALE

MALE

 Buds Swollen, Pregnancy Suspected

 Flowers Emerge In Flower Scales

 "Red Tips"

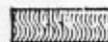
 Flowers Partially Receptive

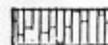
 Flowers Fully Receptive

 Beginning To Close, Partially Receptive

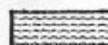
 Flowers Completely Closed

 Catkin Clusters Previously Formed

 Catkin Enlargement

 Slight Pollen Shed

 Maximum Pollen Shed

 Majority Of Pollen Gone