

**FINAL REPORT**

**Roosting and Foraging Ecology of a Southeastern Big-eared Bat  
(*Corynorhinus rafinesquii macrotis*) Maternity Colony in Central Florida.**

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(Includes management recommendations previously submitted as an addendum)

## INTRODUCTION

Under a contract between The Nature Conservancy and Laura Seckbach. Finn, information was obtained about bat species diversity on the Disney Wilderness Preserve (DWP) and the roosting ecology of a population of *Corynorhinus macrotis*. The following is the Final Report, fulfilling this contract. This report includes a summary of the temperatures of the bat trailer, summary of bat species diversity on the property, an interpretation of the results and recommendations for future work.

## METHODS AND RESULTS

### Roost sites:

A colony of *Corynorhinus* was confirmed roosting in an abandoned trailer on the Universal Studios property in September of 1993. This property is adjacent to the DWP (See Figure 1). This trailer was placed on this site in the early 1980's. Due to damage incurred during the move it has never been occupied by humans. A newspaper in the cabinet is dated 1980. This information tells us the bats began using this roost less than fifteen years ago. It is not confirmed when they first moved in, but a heavy guano accumulation in the building indicates the trailer has been used as a roost site for several years. Two of the many unknowns include the location of the original roost and the locations of other roosts used by *Corynorhinus* in the area.

The bat population in the trailer fluctuates indicating the presence of alternate roosts. The DWP and surrounding property, including the town of Poinciana was surveyed for additional *Corynorhinus* roosts during this project. Bridges and culverts in the Poinciana area were checked, as were any abandoned property we could locate. An old barn on Parker property, adjacent to DWP appears to have potential as a *Corynorhinus* roost. However, the large amount of activity, from the hunting camp may preclude occupation. If this property is acquired by TNC, I recommend this barn and the house be left open for a period of at least 1 year to allow the bats the potential to occupy them. Another small house on Parker property was also checked. This had potential but was being used as a base by several of the hunters. Although no signs of bats were noted (i.e., guano) it is possible any of these areas may be used infrequently as night roosts or when hunting season is off.

The Candler property, at the entrance of DWP, is the site of an old barn that has the appearance of a potential *Corynorhinus* roost site. However, the property owner has a history of unfriendly behavior. I have been discouraged from making any contact with him. Like the Parker property, if TNC should acquire this property, I recommend the barn/silo be surveyed for *Corynorhinus* and that these structures be allowed to remain for at least one full year. The Figure 1 map illustrates the locations of these buildings.

Brown, 1978, suggests *Corynorhinus* uses hollow trees and crevices behind loose bark as roost sites. An effort has been made to find a natural roost site. On the DWP, the Reedy Creek swamp houses many old growth cypress trees with large hollows. One of these trees was large enough to crawl inside and stand comfortably. These hollows extend for the greater part of the tree making them excellent potential roost sites. High water levels make the subsequent monitoring of these trees difficult. Guano accumulation, an indicator of bat activity, does not occur. My recommendation is to repeat a thorough survey of the mature trees on the Reedy Creek swamp in the winter months of 1996. During this period the water levels should be low and the deciduous trees without leaves, making finding and monitoring these trees most cost effective.

### **Species diversity survey: mistnetting**

Mistnetting took place from June through November. However, during much of July and August it was not possible to set nets due to heavy rains and high water conditions. This seems to have been a particularly wet year. Table 1 illustrates the dates and sites we netted and the results of those mistnetting attempts. The following is a summary of the successful netting attempts.

As part of the TNC contract Mary Kay Clark (Curator of mammals at North Carolina State Museum of Natural Sciences and expert on *Corynorhinus* in the Southeast) was provided with an airline ticket to come to Florida and provide field training on mistnetting for this very elusive bat. (*Corynorhinus* has a reputation for being difficult to capture in mist nets.) Ms. Clark and her assistant, Darrell DeTour, arrived 21 June and we set mistnets on DWP property the nights of 21, 22, and 23 June 1995. The first two nights no bats were captured, these were a road set in a scrub area and a set near the shores of Lake Russell. On the third night the nets were set over water, on a tributary of Reedy creek roughly 1/4 mile east of the trailer roost. Here we captured two *Corynorhinus* (a male- band number 1/blue, and a lactating female- band number 1/yellow). On the same night we also captured a juvenile *Pipistrellus subflavus* and a lactating *Lasiurus seminolis*.

Nets were set over water at hydrant #2 on 30 June 1995. Two 4-6 foot alligators were present in this area and we weren't able to set nets exactly as I would have liked. These sets were mostly edge sets in water less than two feet deep. Bats could be seen flying over the water and coming down to drink. They were also heard using the bat detector. On this night we captured 1 *Lasiurus seminolis*, post-lactating female. Later that night we also captured another *L. seminolis*. Unfortunately this bat escaped and more detailed information could not be obtained.

On 3 September I made the decision to set the nets up near the trailer roost. We set only one net, two tiers high, approximately 25 yards to the east of the trailer (the entrance is on the north side). This night we captured 9 *Corynorhinus* and 1 *Lasiurus seminolis*. There was approximately 3-4 inches of water on the ground and the net was set low to the water. Two of the bats were captured at water level. Only one of the *Corynorhinus* and the *Lasiurus* was captured in the top net. Most of the other bats were in the middle to lower half of the lower net. This indicates these bats are low altitude flyers. It was obvious that bats are attracted by the calls of those captured in the nets. While removing bats from the net I could see other bats flying near and watched as two were caught and one bounced back out. When these bats are caught in the nets they immediately begin to chew and will chew their way out if not removed quickly enough. They are easy to handle and none showed any tendency to shock. (I was warned by M. Clark that these animals may shock easily if stressed.)

A cattle hole in a scrub near South Florida Water Management District (SFWMD) property has proven to be a good net site on two occasions. The first was 13 September. On this date two female *Eptesicus fuscus* were captured. On the second trip, 11 October, a female *Nycticeius humeralis* was caught.

Although we set nets into November, the last capture of the year occurred 12 October. On this night I had wanted to set nets at a cattle hole near an old homestead. An alligator in this area changed my mind and we set the nets in the oak hammock nearby. Here we captured a female *Lasiurus intermedius*.

Bats were captured on 6 of 24 net nights. We documented the occurrence of six species of bats on the property and captured a total of 20 bats. Although cattle holes and other small water

areas such as hydrants may be important sources of water for bats, netting over these holes is difficult during times of heavy rain and high water. The theory behind netting over water is to capture animals concentrated in a small area, when they come to drink. During wet periods these areas are wide spread lowering the potential of catching bats. Water sites are effective net sites during dry periods when water levels are low and bats are concentrated on the smaller water areas.

Mist netting for bats is a crude method to get information of species diversity and foraging habits. Fortunately bat detectors and night vision scopes allow us to see and hear the bats so we know if we are netting in the right spot. Species identification is possible only with the animal in hand. A better way of assessing species diversity is the ANABAT bat detector system. This system performs analysis on the bats calls and identification to species is possible without ever having actually seen the animal. This is a very expensive system and it too has its flaws, since measurements and reproductive condition can only be determined with the animal in hand. Although mistnetting is crude, it is really the only available method to determine species diversity. Foraging habitats are better studied with radio transmitters placed on animals after they have been captured in mistnets.

### **Population fluctuations in the trailer roost:**

Location and activity of the bats in the roost was monitored. Table 2 and Figures 3 and 4 illustrate the population fluctuations in each room and in total numbers of bats using the trailer. The adult population fluctuates from a high of 50++ in January, June and September 1995, to a low of less than 20 in February. The average is usually 30-35. At no time during the weekly visits was the trailer devoid of bats.

Some trends have emerged: From December through September it was not unusual to find a single bat alone in a room. These animals possibly are males, but none of these solitary bats were banded so this can not be confirmed. At no time have any banded females been seen alone. The west room (location 4) was occupied on 71 % of the visits; the number of bats in this room is greater than five 77% of those times. This room was occupied by five or more bats in all months except February and March. The east room (location 1) was occupied on 58% of the visits with 50 % of those having five or more bats. This room was occupied with five or more bats in February through May.

The bathroom (location 3) was only occupied on 29% of the visits and only by five or more bats 18% of those. This occurred in June while the juveniles were prevalent. Earlier in the year the mummified remains of seven juvenile *Corynorhinus* were removed from the back tank of the toilet in that room. It is not known how old these remains are. The colony was apparently roosting above the tank and when juveniles fell they were unable to climb out. The lid to the tank has since been replaced.

Pups were born during the week of 7 May 1995 and were first seen in the west room. Juvenile mortality was fairly high. One pup was found dead 22 May. During the week of 28 May three juveniles were found dead. Two of which were heavily entangled in cobwebs. All specimens collected are in the process of being cleaned and the skulls and/or skins will be placed in the UCF mammal collection. On 29 May I watched as a nonvolant juvenile fell to the floor in the east room. This animal was able to crawl to the wall and climb to the rest of the colony without any assistance. Since it was difficult to count the number of pups when they were very young (the adults conceal them very well) exact mortality is not known. Approximately 15 pups were counted on 4 June 1995.

Using a night vision scope (NV100I, Moonlight Products) the trailer roost was watched at night on several occasions. The bats leave the roost much earlier in the evening (dusk) than was previously believed and are active in and near the roost much of the night. When the bats leave the trailer they almost invariably fly low and to the east in the direction of Reedy Creek. The bats are generally active during warm temperatures (above 65F) and are often vocal and/or flying in the roost. We watched the trailer on two nights when the temperature was below 57F. The bats did not leave the roost on those nights. They were, however, active when we entered the roost during the day to change the hygrothermograph charts. It is hypothesized that insect activity on these colder nights is low and it would not be worth the energy expenditure to leave the roost in search of food, despite the fact the bats are active during the day. I have seen these animals in a state of torpor on extremely cold days (mean ambient temp less than 55 F). *Corynorhinus* in this area do not hibernate.

To date 11 *Corynorhinus* have been banded, 1 male and 10 females. The population of banded females fluctuates making it obvious that an alternate roost exists. We have not seen the male since it was captured.

### **Temperature and humidity in the bat trailer:**

Temperature and humidity were monitored with Bendix hygrothermographs. Although humidity frequently dropped below 50% outside the trailer, at no time was the humidity in any room inside the trailer below 45% and was usually above 50%. See Figures 5, 6, 7, and 8 for graphs of temperatures inside the trailer. Note: These thermographs had to be calibrated weekly and were frequently off by more than 3 degrees and 10 percent. I am not confident the temperatures are 100% accurate, but feel the hygrothermograph data does give a reasonable comparison of patterns and comparisons between the room temperatures and ambient. There are several days of missing data during times when the hygrothermograph clocks did not run the full week or times when I was not able to change the charts within seven days (largely due to weather). In future work at this site I will try to acquire HOBO dataloggers (Onset Corp.) which are much more reliable and are factory calibrated.

### **Miscellaneous**

Guano has been collected for future work on feeding habits. Insect remains will be identified to family. Determination of insect prey can assist in determining the bats foraging habits. We have also collected culled insect wings from the trailer. These have included Neuroptera: Myrmeleontidae (Ant lions), Lepidoptera: Arctiidae and Noctuidae and several as yet unidentified Coleopterans.

Several incidental species have been noted on the DWP. These include: Sandhill cranes, bald eagles, fox squirrels, river otters, gray fox, alligators, wild pigs and coyotes (heard, not seen).

### **OTHER CORYNORHINUS ROOSTS IN CENTRAL FLORIDA**

During Ms. Clark's visit in June we visited a roost discovered 3 August 1994 on TNCs Dunns Creek Preserve in Putnam County. On 24 June I was told by Jim Murrian (at TNC Winter Park) that >20 bats were in the house approximately one month earlier and that the house had recently been vandalized and the bats were gone as of 2 weeks prior (mid June). We did not see any evidence of vandalism (spray paint, broken windows, etc.) although the house is old and somewhat dilapidated. There were 3 bats roosting in the house on the date of our visit (25 June 1995). Two were adults and one was a juvenile. A new roost was located in Union county by Catherine Caesar (working on a bat/bridge project for FGFWFC) on 30 May 1995. This roost, under a bridge that goes over Swift creek, held roughly 64 bats, adults with juveniles. On my

visit in October there were roughly 30-35 bats. In June an abandoned trailer in Volusia county was found to house a single *Corynorhinus* (presumably a male), this is a new record for this county.

## **MANAGEMENT RECOMMENDATIONS**

The Disney Wilderness Preserve is home to the only maternity colony of *Corynorhinus* studied in Florida. This colony has the distinction of being the first reported maternity colony and the southern-most location for a maternity colony of this species. Only three maternity colonies of *Corynorhinus* are known for the entire state. Two of the colonies roost in structures that are structurally sound and have the potential to provide the bats with a suitable roosting site for many years. The colony on the Dunn's Creek Preserve is in an old block home and the Union County colony is under a concrete bridge.

The DWP bat trailer is considerably vulnerable. The floors are rotting, the paneling on the walls, where the bats roost, is deteriorating. The hole created in the side of the trailer when it was moved to this site in the early 1980's, allows wind and rain to enter the main room of the building. The blocks the trailer is sitting on are not stable. The trailer is located in a mature live oak hammock. Although the hammock provides shade and thermal stability for the trailer, it will in most likelihood be the eventual demise of this roost. Large limbs that fall from the trees during the frequent severe storms have so far missed the building. Eventually one of these limbs is going to fall on the already weakened structure and cause its collapse.

Alternate roosts for this colony have been searched for, but none were found. As illustrated by the fluctuating population numbers there is an alternate roost. Although we have no idea the condition of this roost, we must, for the conservation of the species, assume the worst. Abandoned buildings are considered 'eyesores' and are often torn down or removed (as was the case for the roost site of a solitary *Corynorhinus* in Volusia county). Or they may simply fall apart. I would not count on the few abandoned buildings found near the property to provide sufficient shelter for this colony in the long term. Although these buildings may be potential roost sites, there was no evidence to indicate they were being used. They too are in a great deal of disrepair and there is no guarantee that the property owners would allow bats to use these sites if they were discovered.

Any new structure may need to age before the bats begin to use it. Since this species uses abandoned buildings we do not know what their reaction will be to a structure that is new. The use of old or aged wood may help overcome this potential problem. The structure should be fairly large, approximately half the size of the trailer they are using now, and have at least three rooms. I am suggesting cement block, due to cements thermal properties, with the inside walls lined with 1/4 inch plywood. This will keep the roosting substrate from being too cool. Although these bats seem to be able to cling to very smooth surfaces, the walls should be lined with a polypropylene mesh to ensure they will have no difficulty. I advise a few experiments in the present roost with these substrates to learn the bat's reaction to them. The building should face East/ West to allow for differential solar heating of rooms. Also this structure should be off the ground, but with the area below it enclosed. This should allow for thermal stability and provide sites for other animals on the preserve to roost (there is presently a 'family' of *Didelphis virginianus* under the trailer). A roof strong enough to support fallen oak limbs will be an advantage.

Although I've seen one colony roosting under an open bridge, in Union county, I think four walls are important to prevent rain and wind from being a factor. One main door-size entrance on the North side of the building should be sufficient. Although the bats will use a smaller entrance, it needs to be large enough to allow investigators to enter with ease. I would also either equip this

building with thermocouple wire that can be connected to a datalogger device or plan to place HOBO (Onset Instruments, Pocasset, MA) dataloggers in various positions to allow temperatures to be recorded. This way we not only continue to monitor the roost temperature preferences of these bats, if the bats decline to move in we will know if temperature is a factor and can make modifications to the structure to alter temperature if necessary. Although not as important as temperature, humidity and light level are two additional factors to be considered.

Bat houses placed near roosts where bats were recently evicted have a higher occupancy rate than bat houses placed in other random sites. My work with *Tadarida* and *Nycticeius* in Seminole county confirms this. Although *Corynorhinus* is not likely to use a traditional bat house its reaction to a new potential roost site may be similar. A structure placed near the trailer will likely become occupied in a much shorter time than a building on another site.

A study of the bats activity in and around the new structure will yield new information that will assist in active conservation for this species. The importance of documenting new roosts can not be stressed enough. Conservation efforts are largely focused on individual roost sites rather than on roosting or foraging habitat. Since foraging habitat has not been described in detail for this species in Florida, conservation of specific habitat types is difficult. We can extrapolate from data collected elsewhere on their preferred foraging habitat, with the understanding that more definable research needs to occur in Florida before we can be certain we are focusing in the right areas. I have captured this bat only in the Reedy Creek swamp area and in the area of the roosting trailer. Other researchers in Florida have found them in pine flatwoods. I did not capture this species when netting in or near pine flatwoods. That, however, does not mean they don't occur there. Habitat management for this species should include preservation of mature forests near permanent water sources. Forest types to include swamps and other bottomland forests, pine flatwoods in low-lying areas and mature oak hammocks, particularly those with large hollowed trees.

The biggest threat to this species is the encroachment of humans. Abandoned buildings in rural areas are the sites most often discovered to house this species. Protection of wild-lands and of abandoned properties that may occur on them is the biggest step that TNC may be able to take at the present time. TNC should survey all abandoned buildings on their properties in the Southeast for *Corynorhinus*. If these buildings have been removed, the installation of an artificial roost may be warranted. New properties acquired by TNC should also have abandoned buildings surveyed and protected if they house *Corynorhinus*. Like many other species, we can only actively preserve what we know is there. Without further research on the habits of this species active conservation will be a challenge.

## REFERENCES AND AVAILABLE LITERATURE ON CORYNORHINUS IN FLORIDA

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Table 1. 1995 Mist Net Sites. See Figure 1 for map locations.

| Date      | Location | Habitat Type                | Number of Nets | Number of Bats | Species |
|-----------|----------|-----------------------------|----------------|----------------|---------|
| 21 June   | 1        | Scrub                       | 2              | 0              |         |
| 22 June   | 2        | lake edge/<br>cypress       | 3              | 0              |         |
| 23 June   | 3        | swamp                       | 3              | 4              | 1,2,3   |
| 24 June   | 4        | spring<br>swamp             | 2              | 0              |         |
| 30 June   | 5        | pine flatwoods<br>hydrant 2 | 2              | 2              | 3       |
| 29 July   | 3        | swamp                       | 3              | 0 *            |         |
| 26 August | 6        | scrub<br>pine flatwoods     | 3              | 0 *            |         |
| 1 Sept    | 7        | swamp                       | 3              | 0              |         |
| 3 Sept    | 8        | oak hammock                 | 1              | 10             | 1,3     |
| 13 Sept   | 9        | scrub<br>cattle hole        | 2              | 2              | 6       |
| 16 Sept   | 10       | oak hammock<br>swamp edge   | 3              | 0              |         |
| 20 Sept   | 11       | pasture<br>stream           | 2              | 0              |         |
| 28 Sept   | 12       | pasture<br>cattle hole      | 3              | 0              |         |
| 4 Oct     | 13       | bay swamp                   | 3              | 0 *            |         |
| 5 Oct     | 13       | bay swamp                   | 3              | 0 *            |         |
| 11 Oct    | 9        |                             | 3              | 1              | 5       |
| 12 Oct    | 14       | oak hammock                 | 2              | 1              | 4       |
| 25 Oct    | 15       | pasture<br>cattle hole      | 2              | 0              |         |
| 26 Oct    | 14       |                             | 2              | 0              |         |
| 31 Oct    | 16       | cypress dome                | 2              | 0              |         |
| 2 Nov     | 17       | pasture<br>hydrant #3       | 2              | 0              |         |
| 8 Nov     | 18       | cypress swamp               | 3              | 0              |         |
| 10 Nov    | 19       | lake edge\<br>cypress       | 2              | 0              |         |
| 22 Nov    | 20       | swamp                       | 2              | 0              |         |

- 1: *Corynorhinus macrotis*
- 2: *Pipistrellus subflavus*
- 3: *Lasiurus seminolis*
- 4: *Lasiurus intermedius*
- 5: *Nycticeius humeralis*
- 6: *Eptesicus fuscus*

Summary: 24 Net nights  
6 Nights with captures  
6 Species  
20 bats total

\* bats seen or heard

Table 2: Location and numbers of bats in DWP bat trailer in 1995.

| Date     | Number of bats | Location in trailer | Total number | Mean room temperature |
|----------|----------------|---------------------|--------------|-----------------------|
| 12-6-94  | 1              | 1                   | 34           | NA                    |
|          | 33             | 4                   |              | NA                    |
| 12-17-94 | 1              | 1                   | 31           | NA                    |
|          | 30             | 4                   |              | NA                    |
| 1-15-95  | 1              | 1                   | 60           | NA                    |
|          | 1              | 3                   |              | NA                    |
|          | 55             | 4                   |              | NA                    |
| 1-21-95  | 1              | 1                   | 60           | 55.25                 |
|          | 1              | 2                   |              | NA                    |
|          | 55             | 4                   |              | NA                    |
| 1-24-95  | 16             | 4                   | 16           | 46.5                  |
| 1-26-95  | 22             | 4                   | 22           | 52.5                  |
| 1-29-95  | 20             | 2                   | 22           | NA                    |
|          | 2              | 4                   |              | 70.4                  |
| 2-2-95   | 14             | 1                   | 32           | 56.5                  |
|          | 18             | 2                   |              | NA                    |
| 2-5-95   | 2              | 1                   | 32           | 51.5                  |
|          | 23             | 2                   |              | NA                    |
|          | 5              | 4                   |              | 59                    |
|          | 2              | 5                   |              | NA                    |
| 2-12-95  | 38             | 1                   | 38           | 62.83                 |
| 2-19-95  | 10             | 5                   | 10           | NA                    |
| 2-26-95  | 15             | 1                   | 17           | 69.5                  |
|          | 1              | 4                   |              | 72.75                 |
|          | 1              | 5                   |              | NA                    |
| 3-5-95   | 22             | 1                   | 23           | 73.67                 |
|          | 1              | 4                   |              | 73.33                 |
| 3-12-95  | 20             | 1                   | 22           | 66.5                  |
|          | 1              | 2                   |              | 66.83                 |
|          | 1              | 4                   |              | 65.5                  |
| 3-19-95  | 25             | 1                   | 27           | 63.33                 |
|          | 1              | 4                   |              | 64.5                  |
|          | 1              | 5                   |              | NA                    |
| 3-26-95  | 30             | 1                   | 31           | 67.83                 |
|          | 1              | 3                   |              | NA                    |
| 4-3-95   | 30             | 1                   | 32           | 65.17                 |
|          | 1              | 3                   |              | NA                    |
|          | 1              | 4                   |              | 63.67                 |

- 1: east room
- 2: middle room
- 3: bathroom
- 4: west room
- 5: other (hall or kitchen cabinet)

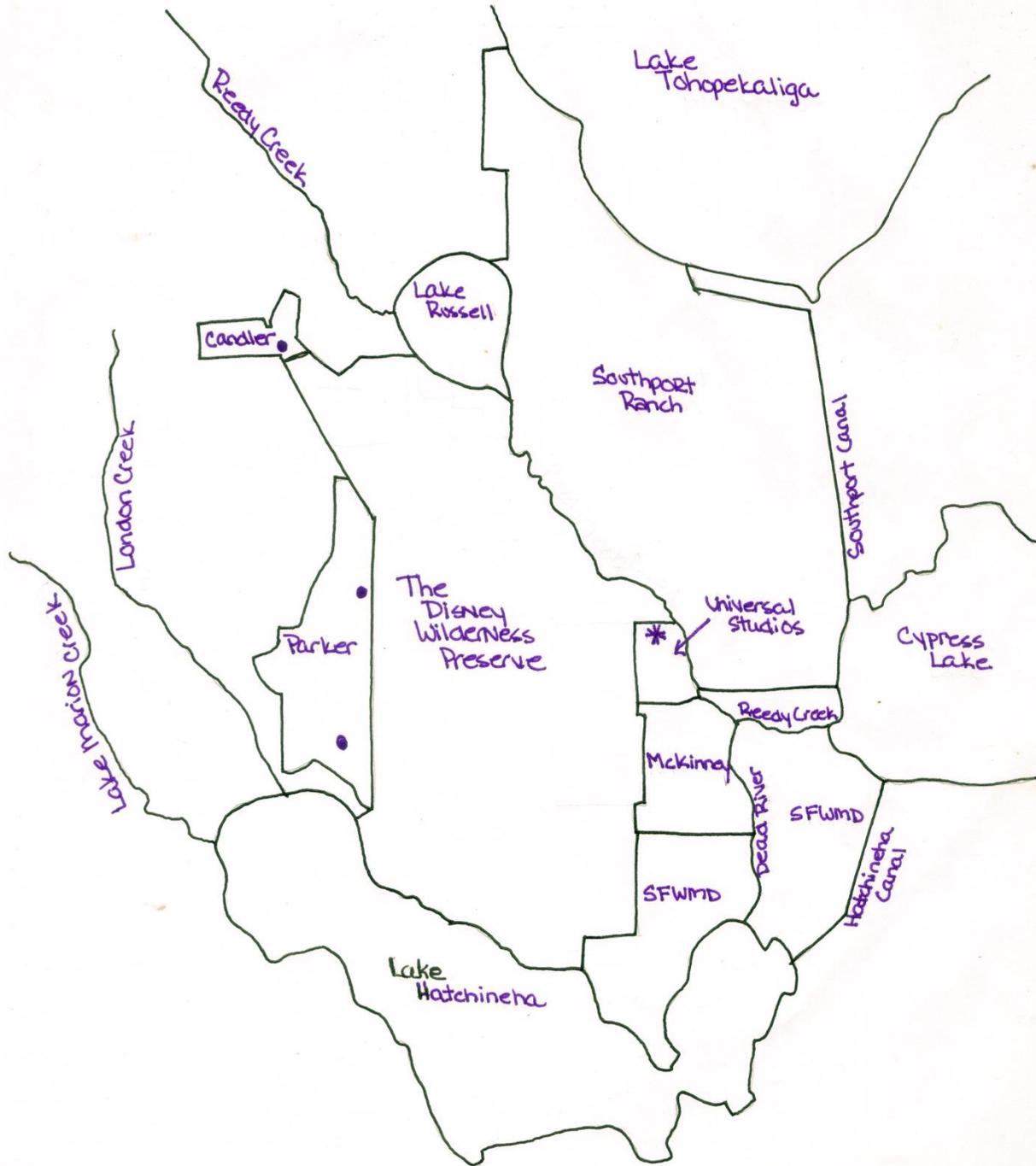
NA: not available

| Date     | Number of bats | Location in trailer | Total number | Mean room temperature |
|----------|----------------|---------------------|--------------|-----------------------|
| 4-9-95   | 1              | 1                   | 31           | 70.5                  |
|          | 30             | 4                   |              | 71.17                 |
| 4-16-95  | 30             | 2                   | 32           | 71.33                 |
|          | 2              | 3                   |              | NA                    |
| 4-24-95  | 29             | 2                   | 31           | 74.67                 |
|          | 2              | 3                   |              | NA                    |
| 4-30-95  | 1              | 1                   | 30           | 74.2                  |
|          | 28             | 2                   |              | 73.83                 |
|          | 1              | 4                   |              | 73.5                  |
| 5-15-95  | 1              | 1                   | 33           | 76.5                  |
|          | 2              | 3                   |              | NA                    |
|          | 30             | 4                   |              | 81.25                 |
| 5-22-95  | 1              | 3                   | 31           | NA                    |
|          | 30             | 4                   |              | 78                    |
| 5-29-95  | 30             | 1                   | 31           | 77.3                  |
|          | 1              | 3                   |              | NA                    |
| 6-4-95   | 1              | 1                   | 36           | 78.17                 |
|          | 35             | 3                   |              | NA                    |
| 6-7-95   | 50             | 1                   | 50           | 79.67                 |
|          | 3              | 4                   |              | 81.5                  |
| 6-18-95  | 40             | 1                   | 40           | 74.5                  |
| 6-28-95  | 15             | 3                   | 45           | NA                    |
|          | 30             | 4                   |              | 76                    |
| 7-16-95  | 1              | 3                   | 50           | NA                    |
|          | 50             | 4                   |              | 78.25                 |
| 7-29-95  | 50             | 4                   | 50           | 81                    |
| 9-3-95   | 50             | 2                   | 50           | 80.25                 |
| 9-10-95  | 1              | 1                   | 50           | 77                    |
|          | 50             | 4                   |              | 76.33                 |
| 9-19-95  | 2              | 1                   | 42           | 79.3                  |
|          | 40             | 4                   |              | NA                    |
| 9-28-95  | 40             | 4                   | 40           | NA                    |
| 10-29-95 | 30             | 4                   | 30           | 66.5                  |
| 11-5-95  | 30             | 2                   | 30           | 68.75                 |
| 11-22-95 | 30             | 4                   | 30           | NA                    |
| 12-28-95 | 50             | 4                   | 50           | NA                    |

**Summary**

| Location | Percent Occupa | Percent >5 bats |
|----------|----------------|-----------------|
| 1        | 58             |                 |
| 2        | 26             | 80              |
| 3        | 29             | 18              |
| 4        | 71             | 77              |
| 5        | 10             | 33              |

Figure 1. Disney Wilderness Preserve and surrounding properties. Location of bat trailer is noted with a star. Dots denote locations of abandoned properties not on DWP which are potential roost sites.



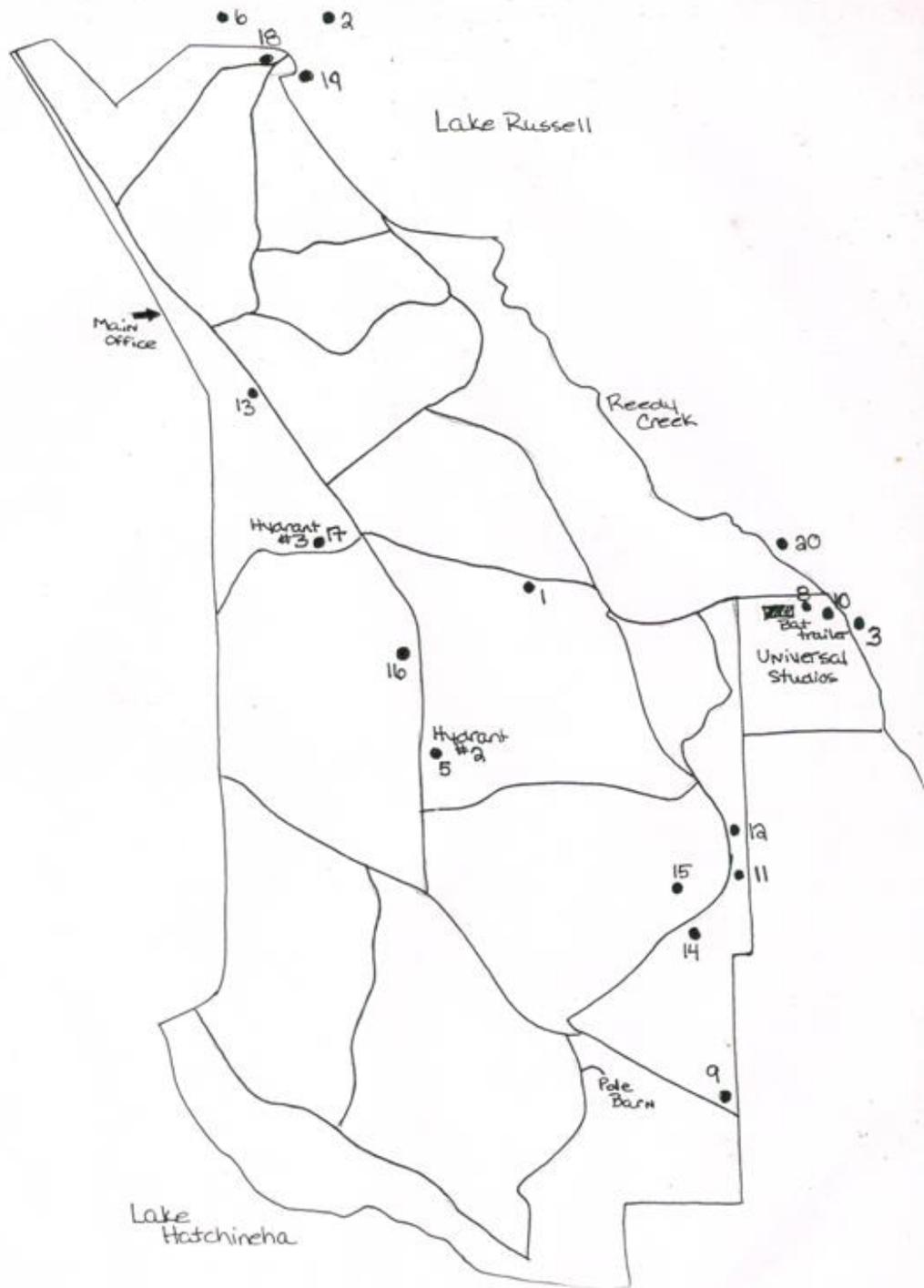


Figure 2: Locations of 1995 Mist Net Sites on and around the Disney Wilderness Preserve.

Figure 3: Numbers of bats in each room by date.

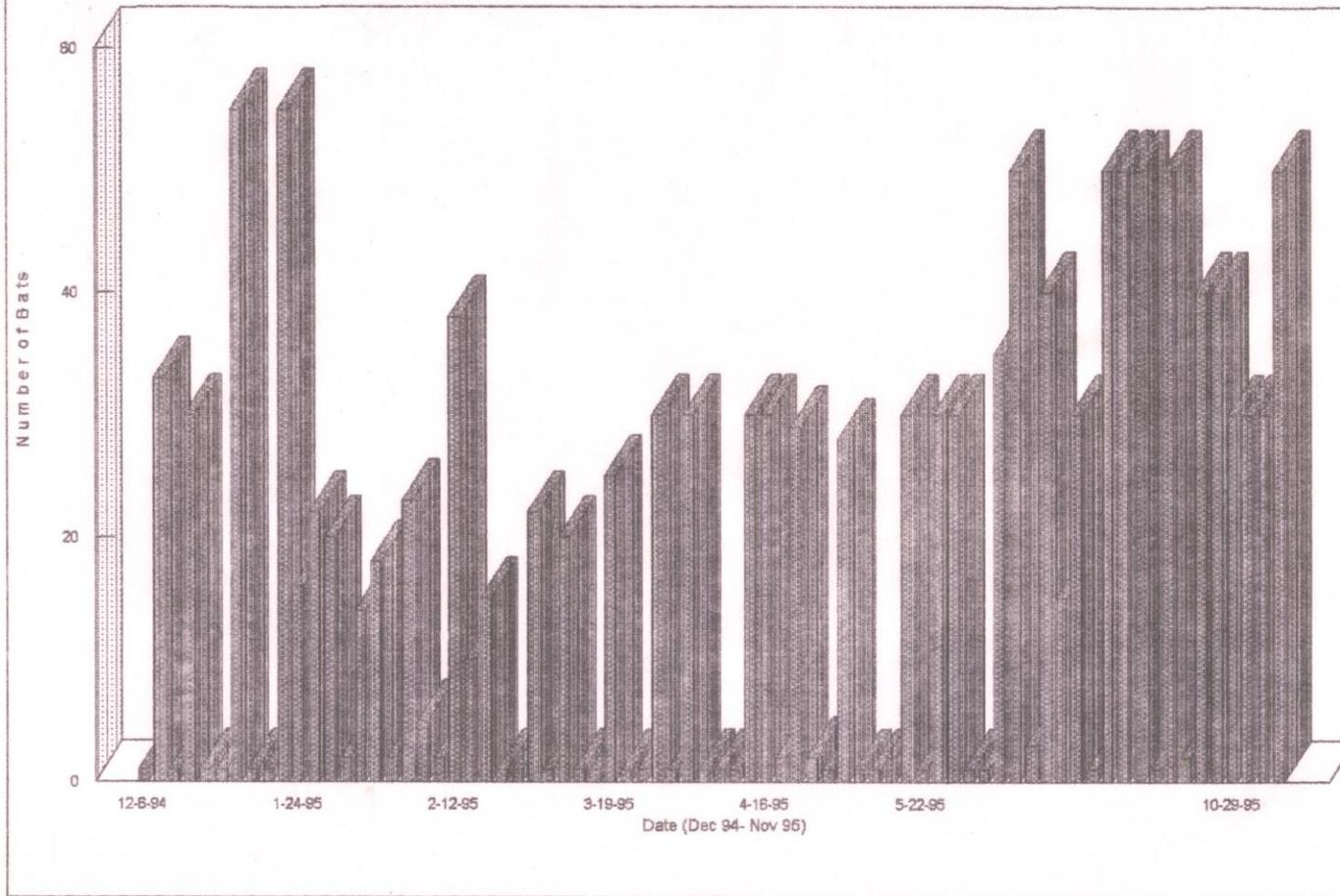


Figure 4: Total number of bats in trailer by date

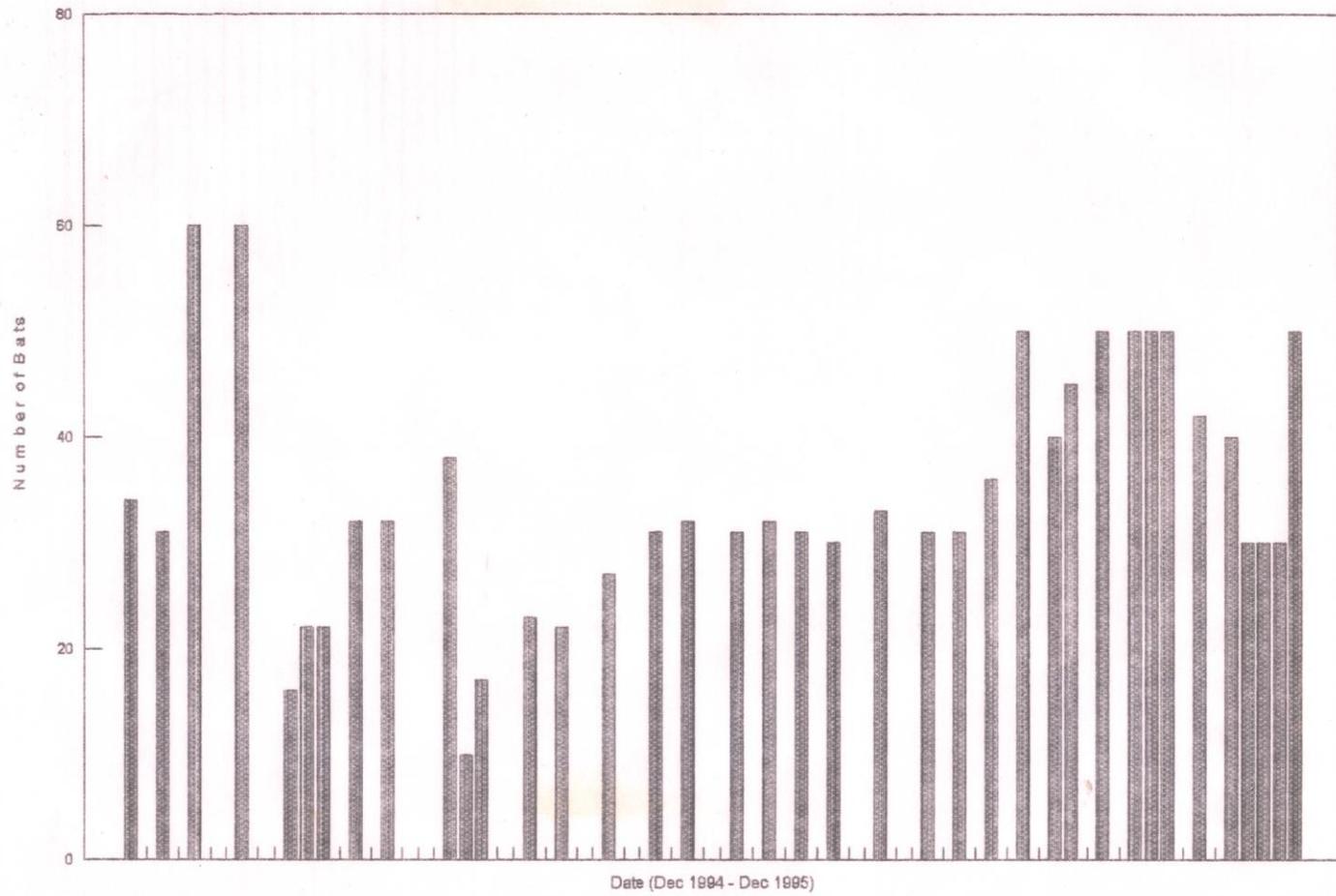


Figure 5: Mean daily ambient temperature at trailer site.

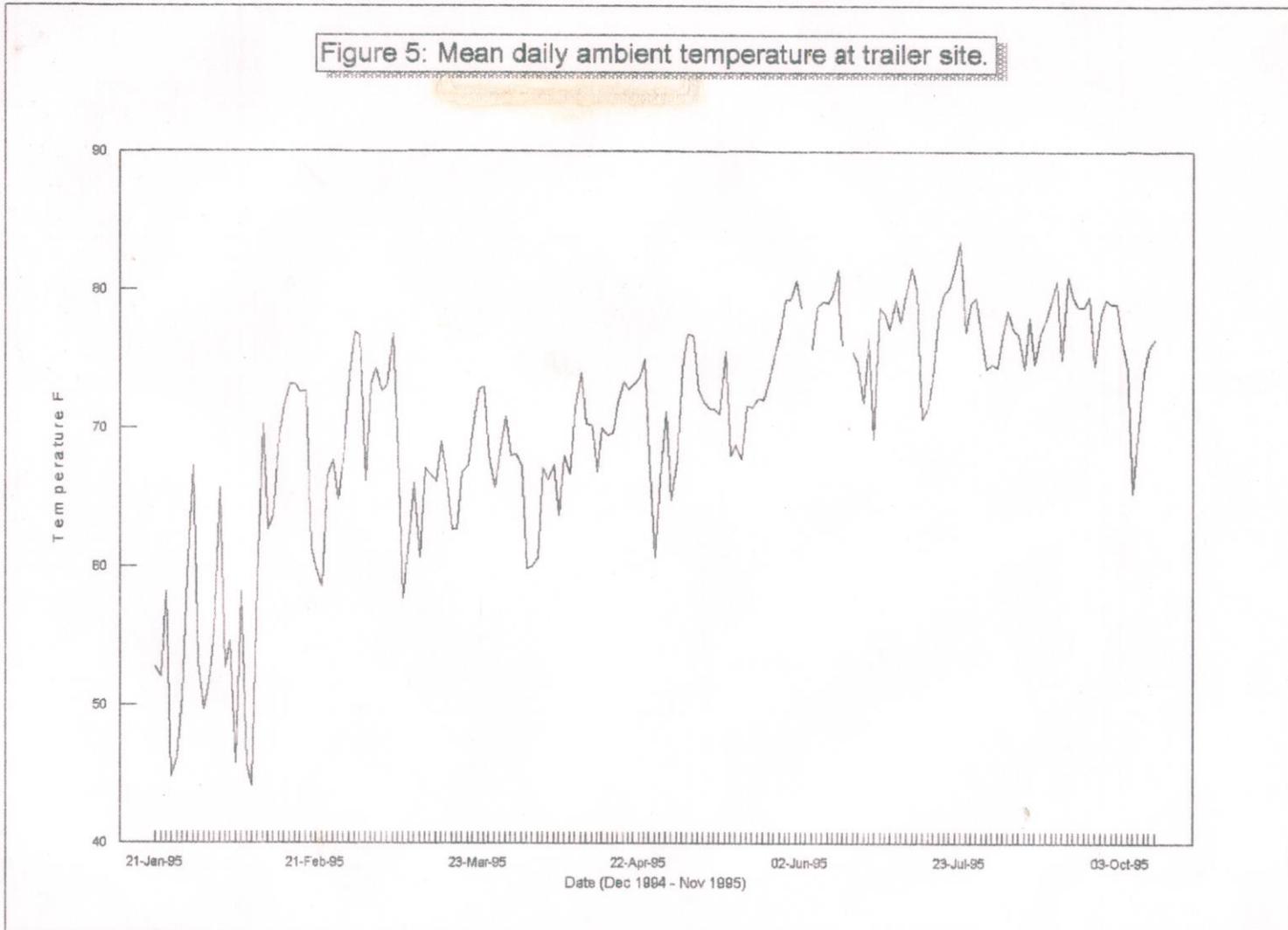


Figure 6: Temperatures at the DWP bat trailer

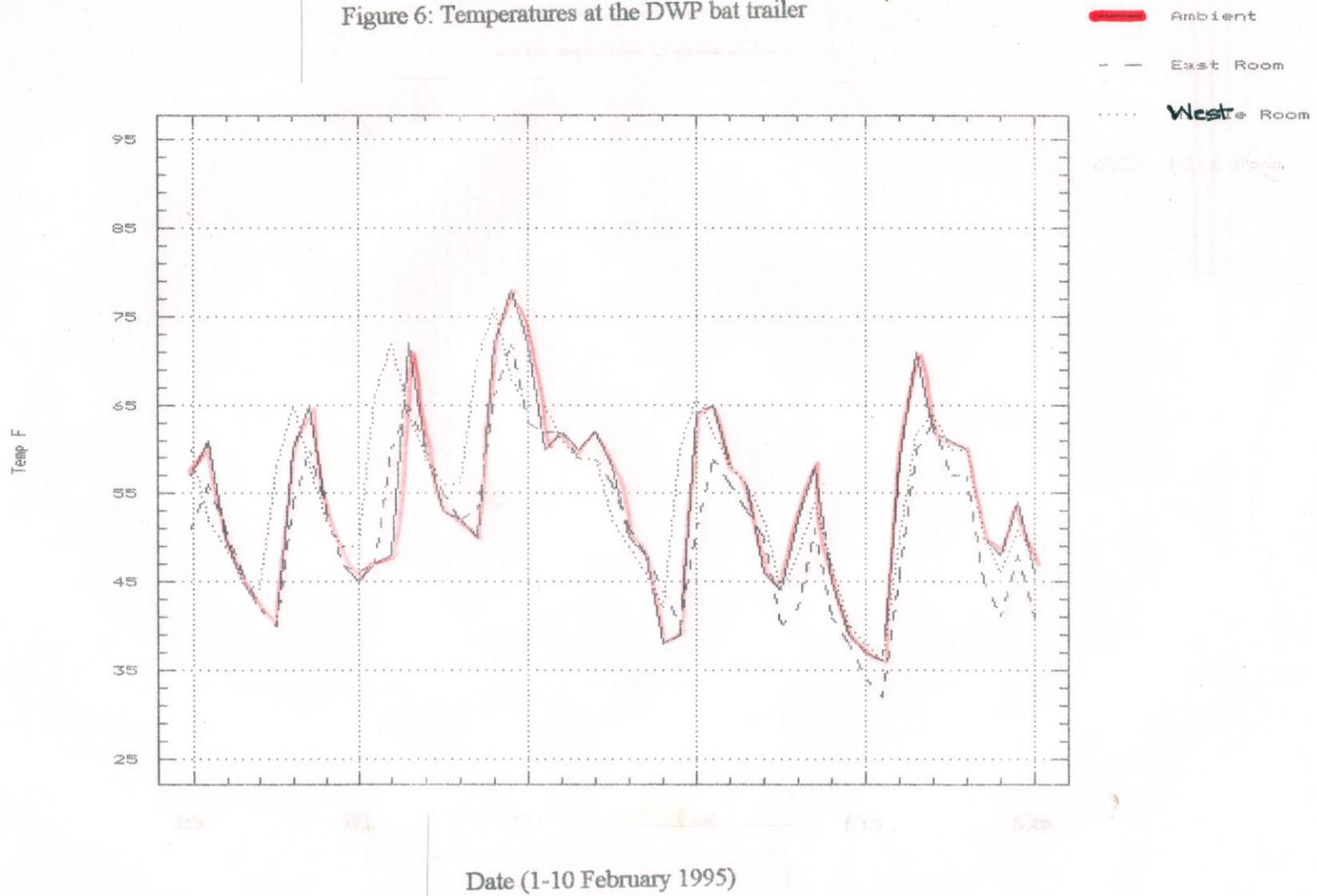


Figure 7: Temperatures at the DWP bat trailer

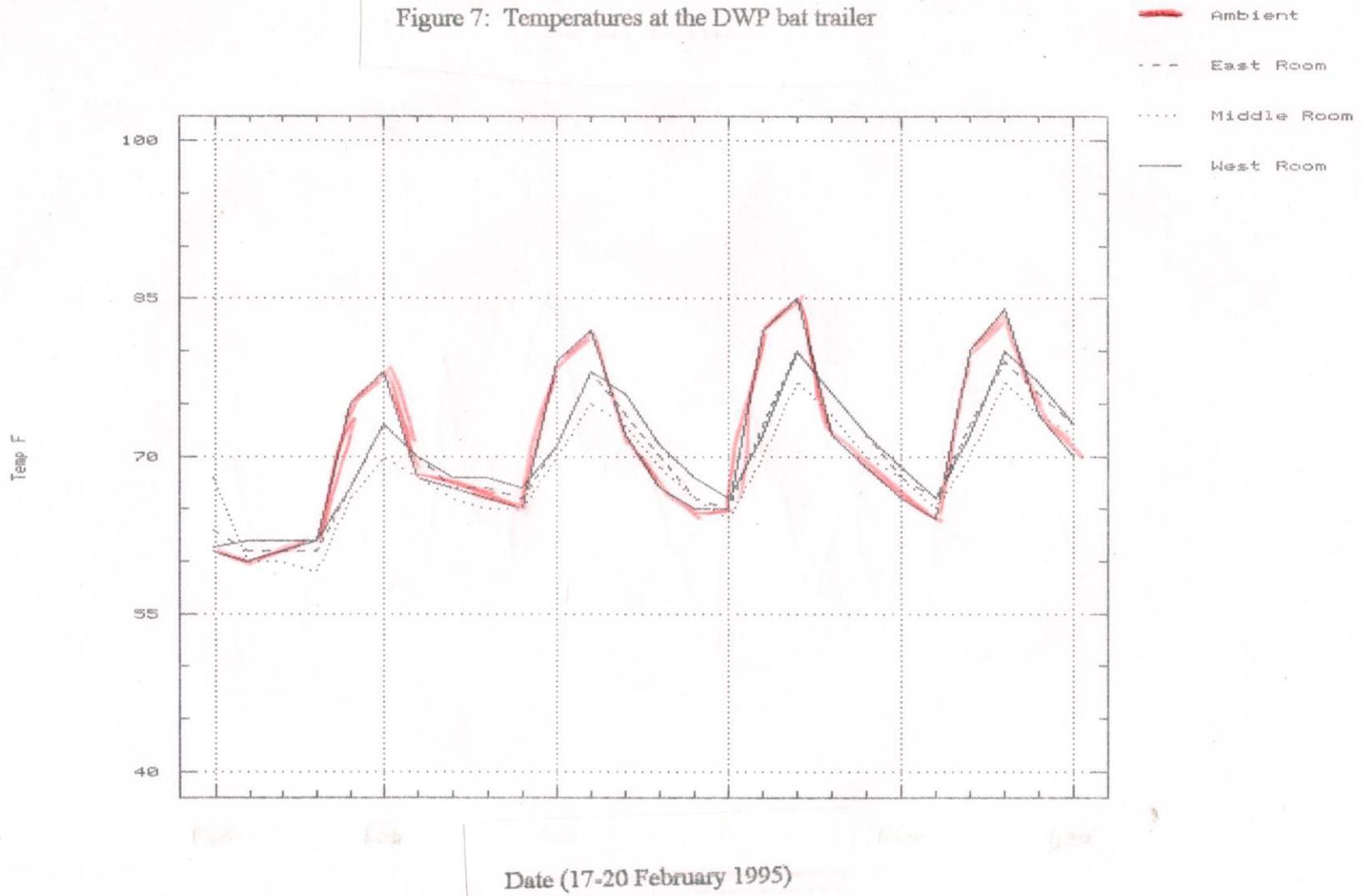


Figure 8: Temperatures at the DWP bat trailer

