# ISOLATED GALAXIES, PAIRS AND GROUPS OF GALAXIES

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We searched for isolated galaxies, pairs and groups of galaxies in the CfA survey (Huchra *et al.* 1983). It was assumed that the distances to galaxies are given by $R = V/H_0$ , where $H_0 = 100$ km $s^{-1}$ $Mpc^{-1}$ and R> 6 Mpc.

The searching procedure is close to those, applied to find superclusters of galaxies (Kalinkov and Kuneva 1985,1986). A sphere with fixed radius $r^*$ is described around each galaxy. The mean spatial density in the sphere is $m$. Let $G^1$ be any galaxy and $G^2$ be its nearest neighbor at a distance $R_2$. If $R_2$ exceeds the 95% quintile in the distribution of the distances of the second neighbors, then $G^1$ is an isolated galaxy. Let the midpoint of $G^1$ and $G^2$ be $O_2$ and $r_2=R_2/2$. For the volume $V_2$, defined with the radius $r_2$, the density $D_2=2/V_2$ is calculated. Here 2 stands for the number of galaxies in the volume $V_2$. We use inequalities to establish regions with density enhancements higher than k $um$. Thus, if $D_2 < k\mu$, the galaxy $G^2$ is a single one and the procedure for searching for pairs and groups, beginning with this object is over and we have to pass to another object. If $D_2 > k\mu$, the searching procedure goes on. Let then $G^3$ be the third neighbor of $O_2$ and let $O_3$ be the center of $G^1$, , $G^2$ and $G^3$ ; $r_3 = \max (O_3G^1, O_3G^2, O_3G^3)$ is calculated and around $O_3$ we describe a sphere with radius $r_3$ of volume $V_3$ and density $D_3 = 3/V_3$. If $D_3 < k\mu$, it might be concluded that the galaxies $G^1$ and $G^2$ form a pair for the specific choice of k and r . The pair is isolated, if the distance $O_2G^3$ exceeds the 95% quintile in the distribution of the distances of the third neighbors. Then the procedure for the galaxy $G^1$ ends. For $D_3 > k\mu$, the procedure continues. Generally, the procedure for searching for multiplets continues for $D_i > k\mu$. If $D < k\mu$, the procedure stops with the finding of a multiplet consisting of i-1 members (i = 2,3,...) and the test for isolation with the 95% quintile in the distribution of the distances to the i-th neighbors.

The algorithm is objective, but it is not always commutative because of the local character of the spatial density. The main difference however between our and some other procedures is the local density. In many cases our groups are closed - it means that the multiplets are independent of the choice of galaxy with which the search has started. But there are some groups which are open - their membership is slightly different, depending on the galaxy with which the procedure has started.

Here the authors present the groups - isolated and nonisolated - with $n > 3$, found in the CfA survey in the Northern galactic hemisphere. The parameters used are k = 10 and $r^* = 5$ Mpc. Table 1 contains: (1) the group number, (2) the galaxy, nearest to the multiplet center, (3) multiplicity $n$, (4) the brightest galaxy if it is not listed in (2); (5) and (6) are R.A. and Dec. (1950), (7) - mean distance D in Mpc. Further there are the mean density $\rho$ (8) of the multiplet (galaxies $Mpc^{-3}$), (9) the density $\rho^*$ for $r^* = 5$ Mpc and (10) the density $\rho_g$ for the group with its nearest neighbor. The parenthesized digits for densities in the last three columns are powers of ten.



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TABLE 1

| | Center | $n$ | Brightest | $\alpha$ | $\delta$ | D | $\rho$ | $\rho^*$ | $\rho_g$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | N2769 | 4 | N2693 | 9 02.0 | 51 09 | 48.5 | 5.8(−1) | 1.3(−2) | 6.8(−2) |
| 2 | U04906 | 3 | N2701 | 9 05.8 | 52 53 | 22.8 | 6.7(−1) | 1.7(−2) | 4.0(−2) |
| 3 | N2780 | 3 | N2770 | 9 08.4 | 34 33 | 19.7 | 6.1 | 2.9(−2) | 5.4(−2) |
| 4 | N2799 | 4 | N2712 | 9 11.2 | 42 29 | 18.2 | 4.7(−1) | 4.4(−2) | 5.4(−2) |
| 5 | U04870 | 3 | | 9 14.4 | 46 41 | 42.7 | 3.2(−1) | 9.6(-3) | 2.4(−2) |
| 6 | N2856 | 4 | N2776 | 9 17.5 | 47 12 | 26.7 | 4.8(−1) | 1.1(−2) | 4.6(−2) |
| 7 | N2814 | 4 | N2805 | 9 19.2 | 64 00 | 16.4 | 9.5(−1) | 8.8(−2) | 9.9(−2) |
| 8 | N2914 | 4 | U05189 | 9 33.5 | 10 02 | 31.7 | 8.2(−1) | 1.1(−2) | 2.2(−2) |
| 9 | N3024 | 3 | N3020 | 9 49.1 | 11 51 | 14.8 | 2.6 | 8.6(−2) | 3.0(−1) |
| 10 | N3011 | 7 | N3003 | 9 49.3 | 32 02 | 14.9 | 1.7 | 1.2(−1) | 5.6(−1) |
| 11 | U05520 | 3 | N2909 | 10 02.9 | 65 40 | 33.1 | 2.7(−1) | 1.3(−2) | 4.3(−2) |
| 12 | U05459 | 5 | N3079 | 10 04.9 | 54 53 | 11.1 | 2.9 | 2.2(−1) | 6.0(−1) |
| 13 | I 591 | 3 | N3107 | 10 05.6 | 13 06 | 27.5 | 1.1 | 2.1(−2) | 2.8(−2) |
| 14 | N3104 | 4 | N3184 | 10 09.3 | 43 56 | 6.1 | 4.2 | 3.7(−1) | 7.6(−1) |
| 15 | N3169 | 5 | N3166 | 10 11.1 | 4 20 | 13.0 | 1.5 | 1.4(−1) | 4.9(−1) |
| 16 | N3189 | 10 | N3227 | 10 19.6 | 22 03 | 13.0 | 1.8 | 1.7(−1) | 1.2 |
| 17 | N3245 | 5 | | 10 25.5 | 28 24 | 13.9 | 1.9 | 1.6(−1) | 6.5(−1) |
| 18 | N3353 | 3 | N3310 | 10 35.7 | 55 26 | 9.6 | 1.0(+1) | 2.9(−1) | 3.3(−1) |
| 19 | U05760 | 7 | N3367 | 10 39.0 | 14 00 | 29.9 | 3.4(−1) | 2.7(−2) | 7.4(−2) |
| 20 | N3346 | 5 | N3338 | 10 42.2 | 14 38 | 12.6 | 2.2 | 1.8(−1) | 6.7(−1) |
| 21 | N3381 | 6 | N3294 | 10 42.4 | 34 38 | 15.9 | 1.4 | 1.1(−1) | 4.1(−1) |
| 22 | U05955 | 3 | N3403 | 10 43.0 | 73 20 | 11.9 | 3.5 | 1.6(−1) | 1.2(−1) |
| 23 | N3368 | 3 | | 10 45.9 | 12 52 | 9.0 | 2.0(+1) | 3.5(−1) | 6.0(−1) |
| 24 | N3433 | 3 | | 10 50.1 | 10 22 | 26.9 | 5.1(−1) | 2.5(−2) | 3.7(−2) |
| 25 | N3414 | 3 | | 10 52.6 | 28 26 | 14.2 | 5.7 | 1.6(−1) | 6.0(−1) |
| 26 | N3454 | 5 | N3457 | 10 53.2 | 18 16 | 11.3 | 1.5(+1) | 2.9(−1) | 1.3 |
| 27 | N3486 | 3 | N3344 | 10 53.2 | 27 52 | 7.0 | 6.5 | 4.6(−1) | 1.0 |
| 28 | U06106 | 3 | U06135 | 10 59.5 | 45 55 | 64.9 | 3.2(−1) | 1.2(−2) | 1.8(−2) |
| 29 | N3489 | 5 | N3627 | 10 59.6 | 13 32 | 7.1 | 6.1 | 4.3(−1) | 1.7 |
| 30 | N3625 | 9 | N3613 | 11 09.2 | 57 57 | 19.7 | 1.4 | 5.3(−2) | 3.8(−1) |
| 31 | U06296 | 3 | N3507 | 11 09.8 | 18 16 | 9.7 | 1.1(+1) | 4.7(−1) | 1.6 |
| 32 | N3549 | 4 | | 11 10.2 | 52 41 | 28.6 | 2.1(−1) | 2.1(−2) | 7.4(−2) |
| 33 | N3628 | 3 | | 11 15.6 | 15 12 | 8.3 | 5.4 | 4.4(−1) | 8.5(−1) |
| 34 | U06345 | 3 | N3630 | 11 16.8 | 3 37 | 15.8 | 2.3 | 7.3(−2) | 1.7(−1) |
| 35 | N3686 | 5 | N3596 | 11 20.1 | 17 05 | 11.9 | 7.6 | 4.1(−1) | 1.7 |
| 36 | N3665 | 4 | | 11 20.8 | 39 01 | 20.8 | 8.6 | 3.2(−2) | 1.3(−1) |
| 37 | N3556 | 3 | | 11 29.1 | 55 14 | 6.8 | 5.7 | 3.4-(1) | 1.2 |
| 38 | N3788 | 4 | N3687 | 11 32.6 | 31 46 | 26.2 | 2.3(−1) | 2.1(−2) | 6.6(−2) |
| 39 | N3755 | 3 | N3813 | 11 35.3 | 36 22 | 15.4 | 1.3 | 7.4(−2) | 4.8(−2) |



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TABLE 1 (continued)

| | Center | $n$ | Brightest | $\alpha$ | $\delta$ | D | $\rho$ | $\rho^*$ | $\rho_g$ |
|---|---|---|---|---|---|---|---|---|---|
| 40 | N3735 | 3 | | 11 35.4 | 70 53 | 27.4 | 1.0 | 3.8(−2) | 1.1(−1) |
| 41 | N3853 | 6 | N3800 | 11 38.2 | 17 13 | 33.0 | 3.5 | 3.2(−2) | 1.8(−1) |
| 42 | N3770 | 10 | N3963 | 11 38.7 | 59 47 | 32.0 | 5.1(−1) | 3.6(−2) | 1.9(−1) |
| 43 | N3817 | 4 | N3839 | 11 39.2 | 10 36 | 61.0 | 2.0(−1) | 1.9(−2) | 9.4(−2) |
| 44 | N3816 | 3 | | 11 40.6 | 20 20 | 55.1 | 9.2(−1) | 1.1(−2) | 4.6(−2) |
| 45 | U06575 | 16 | N3898 | 11 41.0 | 58 57 | 12.3 | 2.6 | 2.2(−1) | 1.7 |
| 46 | N3837 | 3 | N3842 | 11 41.7 | 20 10 | 62.8 | 3.3(−1) | 2.9(−2) | 1.5(−1) |
| 47 | N3900 | 3 | | 11 44.0 | 27 35 | 18.0 | 3.7 | 6.1(−2) | 4.5(−2) |
| 48 | N3902 | 6 | N3812 | 11 45.0 | 25 46 | 36.7 | 9.4(−1) | 4.0(−2) | 2.2(−1) |
| 49 | N3929 | 3 | N3883 | 11 48.1 | 21 08 | 70.5 | 4.6(−1) | 2.1(−2) | 6.6(−2) |
| 50 | N3906 | 13 | N3726 | 11 48.2 | 49 45 | 9.5 | 1.3(+1) | 3.4(−1) | 2.6 |
| 51 | U06923 | 9 | N3992 | 11 54.2 | 53 23 | 10.8 | 4.4 | 2.8(−1) | 1.9 |
| 52 | U06925 | 10 | N3995 | 11 54.3 | 32 28 | 31.5 | 3.3(−1) | 3.1(−2) | 1.9(−1) |
| 53 | N4005 | 4 | | 11 55.7 | 25 26 | 44.2 | 5.5(−1) | 9.6(−3) | 4.4(−2) |
| 54 | N4004 | 3 | N4017 | 11 55.7 | 28 07 | 34.6 | 9.2(−1) | 5.0(−2) | 1.8(−1) |
| 55 | N4026 | 3 | | 11 56.5 | 52 10 | 8.7 | 2.6(+1) | 3.4(−1) | 3.7 |
| 56 | N3949 | 18 | N3938 | 11 59.1 | 46 49 | 7.6 | 6.6 | 4.6(−1) | 2.6 |
| 57 | N4061 | 4 | N4070 | 12 02.0 | 20 41 | 73.2 | 1.0 | 1.0(−3) | 1.5(−2) |
| 58 | N4128 | 3 | | 12 03.7 | 69 30 | 23.2 | 7.8(−1) | 4.0(−2) | 1.7(−1) |
| 59 | N4117 | 6 | N4151 | 12 04.2 | 41 56 | 9.8 | 6.6 | 3.8(−1) | 1.6 |
| 60 | N4116 | 3 | N4123 | 12 07.0 | 2 34 | 13.0 | 3.0 | 2.9(−1) | 6.1(−1) |
| 61 | N4205 | 4 | N4036 | 12 09.2 | 63 59 | 14.3 | 1.8 | 1.8(−1) | 8.0(−1) |
| 62 | N4189 | 3 | | 12 09.8 | 14 08 | 21.6 | 1.3 | 1.2(−1) | 2.8(−1) |
| 63 | N4185 | 8 | N4169 | 12 10.1 | 29 22 | 38.8 | 4.7(−1) | 2.9(−2) | 3.4(−2) |
| 64 | N4081 | 3 | N4125 | 12 10.2 | 65 08 | 13.3 | 5.7 | 1.7(−1) | 1.2 |
| 65 | N4197 | 4 | N4215 | 12 12.6 | 6 01 | 20.9 | 2.4 | 1.4(−1) | 6.7(−1) |
| 66 | U07395 | 3 | N4229 | 12 12.9 | 32 23 | 67.6 | 1.2(−1) | 1.0(−2) | 2.2(−2) |
| 67 | N4256 | 5 | | 12 13.8 | 66 19 | 25.4 | 7.3(−1) | 5.5(−2) | 2.0(−1) |
| 68 | N4200 | 3 | N4168 | 12 14.5 | 12 48 | 23.2 | 2.2 | 1.0(−1) | 3.3(−1) |
| 69 | N4235 | 8 | N4378 | 12 16.4 | 6 44 | 25.9 | 1.4 | 7.8(−2) | 5.2(−1) |
| 70 | I3115 | 9 | N4261 | 12 16.8 | 6 09 | 22.8 | 1.6 | 1.2(−1) | 6.4(−1) |
| 71 | N4254 | 3 | | 12 16.9 | 13 42 | 24.8 | 1.3 | 8.6(−2) | 2.6(−1) |
| 72 | N4251 | 3 | N4314 | 12 17.8 | 29 24 | 10.1 | 1.1(+1) | 5.1(−1) | 9.6(−1) |
| 73 | N4303 | 3 | | 12 18.5 | 4 33 | 15.8 | 1.2(+2) | 2.1(−1) | 7.8(−1) |
| 74 | N4290 | 3 | | 12 18.5 | 58 24 | 30.8 | 6.0(−1) | 3.8(−2) | 1.0(−1) |
| 75 | N4306 | 3 | N4313 | 12 20.1 | 12 16 | 15.1 | 3.3 | 2.5(−1) | 2.5(−1) |
| 76 | N4274 | 4 | | 12 20.7 | 30 24 | 9.0 | 1.5(+1) | 5.5(−1) | 2.3 |
| 77 | N4510 | 5 | N4545 | 12 22.1 | 64 56 | 27.8 | 8.5(−1) | 5.3(−2) | 2.7(−1) |
| 78 | N4335 | 4 | | 12 22.4 | 57 50 | 46.4 | 2.4(−1) | 1.3(−2) | 3.9(−2) |



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TABLE 1(continued)

| | Center | $n$ | Brightest | $\alpha$ | $\delta$ | D | $\rho$ | $\rho^*$ | $\rho_g$ |
|---|---|---|---|---|---|---|---|---|---|
| 79 | N4472 | 7 | | 12 23.4 | 8 07 | 10.2 | 7.7 | 4.2(−1) | 4.8 |
| 80 | N4340 | 14 | N4293 | 12 24.0 | 15 03 | 9.4 | 6.1 | 5.0(−1) | 3.1 |
| 81 | U07428 | 3 | N4525 | 12 24.2 | 31 35 | 12.1 | 5.7 | 3.7(−1) | 5.5(−1) |
| 82 | N4412 | 6 | N4527 | 12 24.4 | 4 08 | 17.1 | 4.8 | 1.6(−1) | 8.8(−1) |
| 83 | N4414 | 3 | | 12 24.4 | 29 25 | 7.2 | 1.1(+1) | 5.4(−1) | 2.8 |
| 84 | N4461 | 4 | | 12 24.6 | 13 02 | 19.2 | 4.4 | 1.6(−1) | 5.7(−1) |
| 85 | N4308 | 5 | N4631 | 12 25.0 | 31 04 | 6.2 | 1.9(+1) | 5.1(−1) | 3.3 |
| 86 | N4519 | 12 | N4486 | 12 25.3 | 9 25 | 12.4 | 4.2 | 3.4(−1) | 2.6 |
| 87 | N4421 | 6 | N4321 | 12 25.6 | 15 09 | 16.1 | 2.8 | 2.0(−1) | 1.0 |
| 88 | N4477 | 6 | | 12 26.0 | 13 18 | 13.7 | 4.0 | 3.2(−1) | 1.6 |
| 89 | N4458 | 4 | N4206 | 12 26.6 | 14 01 | 6.8 | 7.6 | 4.8(−1) | 2.5 |
| 90 | I3521 | 9 | N4526 | 12 26.7 | 10 07 | 5.6 | 6.8 | 4.2(−1) | 1.3 |
| 91 | N4350 | 4 | | 12 26.7 | 17 16 | 12.7 | 4.4 | 3.7(−1) | 1.7 |
| 92 | N4291 | 8 | | 12 27.8 | 74 40 | 17.0 | 5.1(−1) | 5.0(−2) | 3.0(−1) |
| 93 | N4435 | 4 | N4382 | 12 29.2 | 15 35 | 7.9 | 7.6 | 4.7(−1) | 1.4 |
| 94 | N4501 | 3 | | 12 29.4 | 14 41 | 22.8 | 1.4 | 1.1(−1) | 4.7(−1) |
| 95 | 1226+43 | 14 | N5055 | 12 30.0 | 44 11 | 5.3 | 5.4 | 4.8(−1) | 5.1 |
| 96 | N4568 | 4 | | 12 33.6 | 10 35 | 22.5 | 1.9 | 1.2(−1) | 4.1(−1) |
| 97 | N4623 | 3 | N4570 | 12 34.1 | 7 56 | 17.7 | 3.5 | 1.5(−1) | 5.4(−1) |
| 98 | N4587 | 3 | N4636 | 12 34.2 | 3 15 | 9.1 | 1.7(+1) | 3.6(−1) | 1.2 |
| 99 | N4596 | 3 | | 12 34.6 | 10 39 | 18.5 | 2.1 | 1.7(−1) | 9.0(−1) |
| 100 | N4564 | 8 | N4649 | 12 34.9 | 11 24 | 11. | 1.1(+1) | 4.0(−1) | 2.8 |
| 101 | N4598 | 4 | N4535 | 12 35.1 | 7 58 | 19. | 2.0 | 1.6(−1) | 5.8(−1) |
| 102 | N4600 | 10 | N4665 | 12 37.2 | 5 03 | 7. | 5.4 | 3.7(−1) | 2.3 |
| 103 | I3651 | 3 | N4615 | 12 38.8 | 26 33 | 47. | 3.3 | 9.6(−3) | 2.7(−2) |
| 104 | N4687 | 3 | U07812 | 12 42.6 | 34 32 | 42. | 6.7(−2) | 5.7(−3) | 5.2(−3) |
| 105 | N4725 | 3 | | 12 43.7 | 26 02 | 12. | 5.7 | 3.3(−1) | 7.2(−1) |
| 106 | N4695 | 4 | N4686 | 12 45.0 | 54 39 | 49.4 | 9.0(−1) | 1.7(−2) | 2.7(−2) |
| 107 | N4762 | 3 | N4654 | 12 45.9 | 11 13 | 10.2 | 1.1(+1) | 4.0(−1) | 2.1 |
| 108 | N4795 | 3 | | 12 52.1 | 8 53 | 28.0 | 2.6 | 2.3(−2) | 4.3(−2) |
| 109 | N4816 | 4 | N4819 | 12 54.0 | 27 57 | 68.2 | 2.8(−1) | 2.5(−2) | 6.8(−2) |
| 110 | N4904 | 3 | N4845 | 12 54.9 | 1 13 | 11.8 | 4.3 | 2.5(−1) | 4.1(−1) |
| 111 | N4853 | 3 | N4839 | 12 55.2 | 27 42 | 75.5 | 5.4(−1) | 1.7(−2) | 6.9(−2) |
| 112 | I4189 | 5 | N4914 | 13 01.5 | 36 28 | 47.4 | 4.4(−1) | 1.2(−2) | 1.0(−2) |
| 113 | N4966 | 3 | N4944 | 13 04.7 | 29 14 | 69.9 | 2.6(−1) | 1.9(−2) | 3.5(−2) |
| 114 | N5056 | 3 | | 13 12.1 | 30 34 | 56.0 | 1.5(−1) | 1.2(−2) | 2.0(−2) |
| 115 | N5112 | 3 | | 13 15.8 | 38 22 | 9.8 | 6.5 | 3.3(−1) | 7.6(−1) |
| 116 | N5218 | 3 | | 13 22.6 | 62 51 | 28.9 | 8.6(−1) | 3.8(−2) | 6.4(−2) |
| 117 | N5142 | 3 | N5149 | 13 23.1 | 36 30 | 53.6 | 9.0(−2) | 5.7(−3) | 5.8(−3) |



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TABLE 1(continued)

| | Center | $n$ | Brightest | $\alpha$ | $\delta$ | D | $\rho$ | $\rho^*$ | $\rho_g$ |
|---|---|---|---|---|---|---|---|---|---|
| 118 | N5208 | 3 | I 900 | 13 30.8 | 8 12 | 68.0 | 1.5(−1) | 1.3(−2) | 1.8(−2) |
| 119 | U08561 | 3 | | 13 32.0 | 34 11 | 72.9 | 4.2(−1) | 1.2(−2) | 3.2(−2) |
| 120 | N5221 | 3 | N5230 | 13 32.7 | 14 00 | 69.8 | 7.6(−1) | 1.7(−2) | 3.6(−2) |
| 121 | N5320 | 7 | N5371 | 13 47.3 | 40 54 | 25.9 | 1.1 | 5.7(−2) | 3.5(−1) |
| 122 | N5379 | 5 | N5322 | 13 47.5 | 60 25 | 17.8 | 1.0 | 7.8(−2) | 2.0(−1) |
| 123 | N5300 | 3 | N5364 | 13 51.0 | 4 59 | 11.9 | 2.3 | 2.1(−1) | 4.7(−1) |
| 124 | I 948 | 3 | | 13 51.1 | 14 09 | 68.8 | 1.2 | 9.6(−3) | 1.6(−2) |
| 125 | N5383 | 7 | | 13 51.8 | 41 15 | 22.6 | 9.9(−1) | 8.0(−2) | 4.6(−1) |
| 126 | N5341 | 4 | N5395 | 13 53.6 | 37 54 | 35.6 | 2.8(−1) | 2.3(−2) | 4.8(−2) |
| 127 | U08883 | 3 | U08827 | 13 54.2 | 15 30 | 56.1 | 5.7(−1) | 1.5(−2) | 3.2(−2) |
| 128 | N5382 | 3 | N5374 | 13 55.5 | 6 29 | 43.0 | 9.0(+1) | 1.5(−2) | 4.1(−2) |
| 129 | N5416 | 3 | | 14 00.0 | 9 42 | 61.7 | 2.4(−1) | 1.2(−2) | 3.2(−2) |
| 130 | N5434 | 3 | N5417 | 14 00.1 | 8 38 | 46.6 | 2.0(−1) | 1.5(−2) | 1.5(−2) |
| 131 | N5445 | 4 | N5444 | 14 01.2 | 35 24 | 38.6 | 5.5(−1) | 2.9(−2) | 9.5(−2) |
| 132 | U09081 | 3 | N5406 | 14 02.1 | 39.28 | 52.9 | 1.8(−1) | 1.2(−2) | 1.6(−2) |
| 133 | U09056 | 7 | N5448 | 14 05.1 | 49 49 | 20.0 | 9.9(−1) | 8.8(−2) | 7.9(−1) |
| 134 | U08980 | 3 | U08975 | 14 05.7 | 39 16 | 58.0 | 1.2(−1) | 1.2(−2) | 1.9(−2) |
| 135 | U09062 | 3 | N5490 | 14 08.7 | 19 01 | 50.4 | 1.8(−1) | 1.2(−2) | 2.3(−2) |
| 136 | N5631 | 8 | N5678 | 14 13.1 | 56 48 | 19.7 | 9.3(−1) | 8.0(−2) | 4.9(−1) |
| 137 | I1000 | 3 | | 14 20.2 | 18 07 | 56.6 | 2.2(−1) | 1.2(−2) | 2.2(−2) |
| 138 | N5590 | 5 | N5557 | 14 20.8 | 36 06 | 32.5 | 3.7(−1) | 3.2(−2) | 1.4(−1) |
| 139 | U09356 | 6 | N5665 | 14 25.4 | 12 32 | 22.7 | 2.7(−1) | 1.7(−2) | 8.6(−2) |
| 140 | N5641 | 3 | | 14 26.8 | 28 59 | 43.5 | 6.4(−1) | 1.3(−2) | 5.1(−2) |
| 141 | N5649 | 3 | | 14 27.7 | 14 10 | 51.9 | 1.2 | 1.2(−2) | 4.8(−2) |
| 142 | N5653 | 3 | | 14 27.8 | 32 16 | 35.1 | 1.1 | 2.7(−2) | 6.1(−2) |
| 143 | N5669 | 3 | | 14 28.1 | 10 32 | 13.5 | 8.9(−1) | 8.6(−2) | 1.1(−1) |
| 144 | N5689 | 7 | N5676 | 14 31.6 | 49 34 | 21.8 | 1.0 | 8.4(−2) | 4.4(−1) |
| 145 | N5675 | 3 | N5695 | 14 33.2 | 36 41 | 41.7 | 5.7(−1) | 1.9(−2) | 2.8(−2) |
| 146 | N5735 | 3 | | 14 35.1 | 29 40 | 37.8 | 1.8(−1) | 1.3(−2) | 3.2(−2) |
| 147 | N5692 | 19 | N5566 | 14 36.1 | 3 35 | 15.9 | 1.0 | 8.0(−2) | 6.0(−1) |
| 148 | U09519 | 4 | N5798 | 14 44.0 | 32 06 | 17.5 | 2.7(−1) | 2.3(−2) | 3.1(−2) |
| 149 | N5804 | 4 | N5797 | 14 55.8 | 49 58 | 40.9 | 9.3(−1) | 1.2(−2) | 3.3(−1) |
| 150 | N5838 | 3 | | 15 01.3 | 2 04 | 13.9 | 4.8 | 7.8(−2) | 3.3(−1) |
| 151 | N5820 | 6 | N5905 | 15 03.9 | 54 46 | 32.3 | 2.0(−1) | 1.9(−2) | 5.1(−2) |
| 152 | N5906 | 3 | N5866 | 15 17.3 | 56 24 | 6.6 | 4.1(+1) | 2.0(−1) | 6.1(−1) |
| 153 | N5930 | 4 | N5899 | 15 21.7 | 41 40 | 25.8 | 1.7 | 1.3(−2) | 4.6(−2) |
| 154 | N5985 | 3 | | 15 28.7 | 59 41 | 25.4 | 4.7-1 | 1.9(−2) | 2.3(−2) |
| 155 | I4564 | 6 | I4567 | 15 32.3 | 43 27 | 56.7 | 1.8(−1) | 1.5(−2) | 1.7(−2) |
| 156 | N5974 | 3 | N5958 | 15 34.3 | 30 35 | 19.5 | 3.6(−1) | 1.5(−2) | 3.0(−2) |



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TABLE 1(continued)

| | Center | $n$ | Brightest | $\alpha$ | $\delta$ | D | $\rho$ | $\rho^*$ | $\rho_g$ |
|---|---|---|---|---|---|---|---|---|---|
| 157 | N5956 | 8 | N5962 | 15 35.5 | 14 14 | 419.1 | 5.2(−1) | 2.8(−2) | 8.1(−2) |
| 158 | N5982 | 3 | | 15 39.0 | 59 13 | 29.3 | 1.6 | 1.9(−2) | 4.2(−2) |
| 159 | I1151 | 3 | | 15 50.7 | 18 21 | 21.5 | 3.8(−1) | 2.3(−2) | 6.8(−2) |
| 160 | U10127 | 3 | N6052 | 15 57.3 | 20 59 | 48.0 | 2.1(−1) | 1.9(−2) | 4.2(−2) |
| 161 | I1174 | 3 | N6021 | 16 02.1 | 16 02 | 47.3 | 3.0(−1) | 1.5(−2) | 4.0(−2) |

There are many coincidences between groups from Table 1 and groups from other catalogs (Turner and Gott 1976, Huchra and Geller 1982, Vennik 1984, Tully 1987). Some groups from the Geller and Huchra (1983) catalog are merged in Table 1 and vice versa, some groups from Table 1 are merged in the GH catalog.

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